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Toxicology Directorate

Ecotoxicity of New Film-Forming Foams: Acute and Subacute Toxicity Tests in
***Mus musculus*, February 2021 – December 2021**

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14. ABSTRACT This Technical Report describes short term toxicity in mice for seven per-and polyfluoroalkyl substances (PFAS)-free and PFAS-containing aqueous film forming foam (AFFF) products under consideration for use by the Department of Defense. CD-1™ mice are an outbred species of mice (<i>Mus musculus</i>) that provide some insight towards terrestrial mammalian wildlife toxicity as well as human toxicity. Exposure was via oral gavage to products as the concentrates as they are manufactured and sold prior to use at 3% dilution formulations. Exposures were acute ('limit test') or subacute ('28d test') with the acute test based on a single dose and the subacute test as 28 daily doses. Observations in bodyweight, tissue weights, hematological parameters, serum clinical chemistry, thyroid hormone concentration, and micronucleus assay (DNA damage) were interpreted to inform an overall perspective of short-term exposure toxicity in mice. Notably, liver weight was the most informative endpoint for comparison across AFFF products with the PFAS-containing AFFF "Buckeye" being the most toxic. Among the PFAS-free AFFF, NRL 502W shows the greatest toxicity with anemia and liver effects. NFD 20-391 shows the least toxicity among the PFAS-free AFFF products.						
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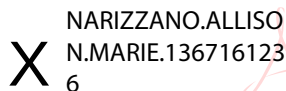
Good Laboratory Practice Compliance Statement

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

1. The test articles are mixtures prepared by the manufacturer. It is not known if characterization (purity) was conducted and as such, if the testing was done in compliance with the above regulation.
2. Due to personnel and sponsor-imposed time constraints, the method of analysis for these compounds had not been developed prior to the study start in compliance with study protocol and modification requirements.

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ECOTOXICITY OF NEW FILM-FORMING FOAMS: ACUTE AND SUBACUTE TOXICITY
TESTS IN *MUS MUSCULUS*
FEBRUARY 2021-DECEMBER 2021

1 SUMMARY

1.1 Purpose

The Fiscal Year (FY) 2020 National Defense Authorization Act (NDAA) S.1790 (Public Law No: 116-92) guides the Secretary of Defense to prohibit the release of fluorinated aqueous film forming foams (AFFFs) into the environment outside of emergency scenarios or with containment and disposal techniques in place to preclude release to the environment (NDAA 2019, Sec. 323(a), 323(b)(1-2), 330). Further, use of fluorinated AFFFs for training activities is prohibited (NDAA 2019, Sec. 324). The FY2021 NDAA H.R.6395 (William M. (Mac) Thornberry NDAA (Public Law No: 116-283)) promotes research and development of alternatives to PFAS-containing AFFFs to facilitate military specification (MILSPEC) development and fielding of per- and polyfluoroalkyl substance (PFAS)-free AFFF (NDAA 2020, Sec. 334). It further explicitly states the requirement to explore green and sustainable chemistry and chemicals that limit harm to public health and the environment (NDAA 2020, Sec. 334(a)(2), 334(b)(2)). Related, the Secretary of Defense is required to leverage existing research programs within the Department of Defense (DoD) (NDAA 2020, Sec. 334(b)(3)).

Funding was provided by Strategic Environmental Research and Development Program – Environmental Security Technology Certification Program (SERDP-ESTCP) through response to statement of need ERSON-20-A1: *Ecotoxicity of Fluorine-Free Surfactant Formulations* with project ER20-1508: *Assessing the Ecotoxicity of PFAS-Free Surfactant Formulations in Wild Mice*. (SERDP 2019a and 2019b)

This study's primary objective is to compare the toxicity of PFAS-free AFFFs against current short-chain PFAS-containing AFFF. This study's focus on short term exposures and resultant toxicological effects in CD-1[™] mice (*Mus musculus*) represents both a relevant exposure pathway (direct usage or contamination) and a test organism that has utility for evaluation of toxic effects in both humans and wildlife receptors.

Downstream objectives of the SERDP funded proposal include subchronic/sensitive life-stage exposures and ranking of formulations by toxic effects. These objectives will be provided in separate reports prepared on their completion. Further testing and ranking data and insights will be summarized in a Toxicology Assessment prepared by the Toxicology Directorate.

In this study, CD-1[™] mice were exposed to six PFAS-free AFFFs and one PFAS-containing AFFF, as a reference. In initial tests, mice received one bolus dose at 2,000 milligrams per kilogram (mg/kg) via oral gavage (i.e., a limit test). In the subacute tests, mice received daily bolus doses via oral gavage for 28 consecutive days. At the conclusion of exposure, animals were necropsied, tissues collected, and ex vivo analyses performed.

1.2 Conclusions

In the limit tests, no mortality or gross effects were observed for any of the products (replacement and reference). In the 28-day exposures, the only effect potentially associated with treatment were mice presenting transient flatulent mouse syndrome (FMS) (characterized by severe abdominal bloating) sometimes resulting in mortality. Other treatment-related effects observed were some organ weight patterns, hematology and clinical chemistry parameter patterns, and potential thyroid hormone modulation. The majority of effects observed were in males, with the relative liver weight and clinical chemistry/hematology as the most impacted and useful for establishing a cross-product pattern. These data provide a basis for concentration selection and target endpoint selection in future repeat-dose and reproductive/developmental screenings. These data also provide a contribution towards the ultimate goal of ranking replacements by their toxicity as well as a comparison against the reference PFAS-containing AFFF.

2 REFERENCES

Appendix A contains a listing of references for this report.

3 AUTHORITY

This study was conducted with funding from the SERDP, Environmental Restoration Project No. ER20-1508 (MIPR# W74RDV01273067). It was performed as part of a larger effort funded by SERDP entitled "Ecotoxicity of Fluorine-Free Surfactant Formulations" (ER20-1508; SERDP 2019b).

4 BACKGROUND

Current AFFFs used by the DoD contain the class of chemicals known as PFAS. PFAS have been found globally in drinking water sources and in tissues of animals. Some PFAS are found to bioaccumulate in the liver and other tissues and are poorly excreted in humans. The extent of the toxicological impact of PFAS exposure is an active area of research, but there is growing evidence of negative health impacts across multiple biological systems.

Replacement AFFFs that do not contain PFAS are available on the market. There are also products under development. As part of the response to the statement of need, six PFAS-free AFFFs and one PFAS-containing reference AFFF were provided via SERDP. The known components of each AFFF ranges from 5 to 74.5%, indicating that up to 95% of a product has not been disclosed by the manufacturer. While a large proportion of the unknown components could potentially be comprised of water as a solvent, relative toxicity rankings require addressing this known knowledge gap through estimation techniques, uncertainty analysis, inclusion of constituent data, and phased testing.

The primary goal of these early-phase tests was to evaluate the short-term toxicity (single dose and 28-day repeat dose) of PFAS-free and PFAS-containing AFFFs in CD-1[™] mice. Lethality,

bioenergetic, tissue weight, hematological, clinical chemistry, hormonal, and DNA damage endpoints were assessed. These short-term dose response data will be integrated into follow-up, longer-term repeat-dose and reproductive/developmental screenings, which will be used to evaluate the overall toxicological profile of PFAS-free and PFAS-containing AFFFs. These profiles help refine efforts to rank selection of replacement AFFF products based on toxicological hazards. These data will also be applied in a Toxicology Assessment prepared on PFAS-free AFFFs by the Toxicology Directorate.

Table 1 identifies the dates of critical study events.

Table 1. Critical Study Events

Critical Event	Date of Event
Animal Use Protocol Approved	11/10/2020
In-Life Initiation	02/03/2021
In-Life Completion	09/24/2021
Experimental Completion	01/28/2022
Study Completion	08/04/2022

5 MATERIALS AND METHODS

5.1 Test Products

Seven test products (six plus a PFAS-containing reference product) were obtained from Naval Research Lab (NRL) engineers via SERDP. This was to maintain consistency across other funded projects in the cohort. Manufacturer data on purity was provided in safety data sheets (SDS) and confirmed/modified by APHC Laboratory Sciences Method Development Division.

The seven test substances (summarized in Table 2) are:

- BIOEX® ECOPOL A 3% (ECOPOL A),
- Fomtec Enviro USP (Enviro),
- National Foam 20-391 (NFD 20-391),
- National Foam Avio®^{F3} Green KHC 3% (Avio Green),
- Naval Research Lab (NRL) 502W (Siloxane-based) (NRL 502W),
- Solberg® Re-Healing™ Foam RF3 3% (Re-Healing), and
- Buckeye Platinum Plus 3% AFFF, BFC-3.1 (Buckeye) (reference, PFAS-containing AFFF).

Table 2. Table of Commercial Products Tested, Abbreviations Used Through Report, and Percent (%) of Ingredients Disclosed in SDSs

Formulation	Abbreviation	% Disclosed in SDS
BIOEX ECOPOL A 3%	ECOPOL A	10–32.5
Fomtec Enviro USP	Enviro	12–23
National Foam 20-391	NFD 20-391	5–24
National Foam Avio ^{F3} Green KHC 3%	Avio Green	25–61
Naval Research Lab (NRL) 502W (Siloxane-based)	NRL 502W	33.7
Solberg Re-Healing Foam RF3 3%	Re-Healing	<74.5
Buckeye Platinum 3% AFFF, BFC-3.1	Buckeye	<20

Legend:

SDS = safety data sheet

5.2 Quality Assurance

This study was conducted according to Good Laboratory Practices (GLP) (CFR 2021). The U.S. Army Public Health Center (APHC) Quality Systems and Regulatory Compliance Office audited critical study phases. Appendix B provides the dates of these audits, the phases audited, and the dates the results were reported to the Study Director and Management.

5.3 Study Personnel

Appendix C lists the physical locations for data, documentation, records, protocol and reporting archives as well as names of individuals contributing to the study performance.

5.4 Dose Selection

Doses were selected based on ASTM E1163-10 Standard Test Method for Estimating Acute Oral Toxicity in Rats. In particular, starting at a 'limit dose' (single 2,000 mg/kg dose followed by 14 days observation) and following with staged, adaptive dose selections in secondary tests to refine median lethal dose (LD₅₀) estimate, as necessary. Concentrations for subchronic tests were selected using a multiplicative factor of 0.5 for six concentrations total (2,000, 1,000, 500, 250, 125, and 0 mg/kg bodyweight per day (mg/kg-d)). These doses allow for potential lethality after repeat limit doses while retaining potential for observing sub-lethal responses in reduced concentrations.

5.5 Preparation of Dosing Solutions

5.5.1 Acute Exposure ('Limit Test')

Products were diluted into dosing solutions by weighing products into 50 milliliters (mL) polypropylene conical vials and diluting with deionized water (diH₂O) to 200 mg/mL solutions. Each was done gravimetrically to avoid confounding density issues with formulations. Limit test dosing solutions were not saved, as they do not need to be confirmed analytically per GLP.

5.5.2 Subacute Exposure ('28-Day Test')

Products were diluted into dosing solutions by weighing formulations into 1-liter (L) volumetric flasks and diluting with diH₂O to 200 mg/mL (grams per liter (g/L)) solutions. Subsequent dosing dilutions were made from that highest concentration stock, but not as a serial dilution to control for loss of product in glassware. Products are extremely sticky and work instructions for mixing and diluting were created specifically for PFAS and PFAS-like compounds.

Dosing solutions were made at the start of dosing and 2 weeks later. Samples were collected for analytical concentration verification on the first day of dosing and 2 weeks later at the lowest (12.5 mg/mL) and highest (200 mg/mL) concentrations. Dosing solutions were bottled for each week to limit cross-contamination and were aliquoted daily into 15 or 50 mL conical vials after a 5-minute gentle mixing procedure.

5.6 Analytical Concentration Verification

The method to verify concentrations of dosing solutions was derived by quantifying solvents in products. Two solvents were present across the seven products—five contained different amounts of diethyl glycol monobutyl ether (DGBE, CASRN#:112-34-5) and two contained different amounts of hexylene glycol (HG, CASRN#:107-41-5). Each product was analyzed to quantify the amount of solvent in neat products—by concentration (mg/mL) and % (weight per weight (w/w) or volume per volume (v/v), see Table 3). This percent was used to test that dosing solutions were correct dilutions (i.e., a 200 g/L dosing solution (diluted in diH₂O) would contain approximately 10 g/L solvent if the product was 5% solvent). Error in estimates of neat solvent concentration based on gas chromatography mass spectrometry (GC-MS) method is 30% above and below (70 – 130%).

Table 3. Table of Neat Products' Solvent Concentrations as Determined by Analytical Methods

Formulation	Solvent	Neat Concentration (mg/mL), (error) ^a	% (w/w) (error) ^a
BIOEX ECOPOL A 3%	DGBE	73 (51, 95)	7.3 (5.1, 9.5)
Fomtec Enviro USP	DGBE	84 (58, 109)	8.2 (5.7, 10.7)
National Foam 20-391	HG	61 (43, 79)	5.9 (4.1, 7.7)
National Foam Avio ^{F3} Green KHC 3%	DGBE	150 (105, 195)	15.1 (10.6, 19.6)
Naval Research Lab (NRL) 502W (Siloxane-based)	DGBE	160 (112, 208)	15.9 (11.1, 20.7)
Solberg Re-Healing Foam RF3 3%	DGBE	95 (69, 127)	9 (6.3, 11.7)
Buckeye Platinum 3% AFFF, BFC-3.1	HG	99 (69, 129)	9.6 (6.7, 12.5)

Legend:

mg/mL = milligrams per milliliter

w/w = weight per weight

DGBE = diethyl glycol monobutyl ether

HG = hexylene glycol

Note:

^a Error is 70 – 130% of estimate, notably median % recovery for DGBE is 110% (n=3) and for HG is 117% (n=3).

Extraction methods for solvents include reducing sample volume at 66 degrees Celsius (°C) under gentle nitrogen gas flow, then diluting with acetonitrile and vortexed. Samples were then centrifuged and liquid phase transferred to volumetric flask. Sample tube was rinsed twice with acetonitrile and volumetric sample made up to volume with acetonitrile. Samples were then analyzed using optimized method and Agilent GC-MS 5975 instrument with HP-1MS column.

5.7 Animals and Housing Conditions

All animals were housed in temperature-, relative humidity-, and light-controlled rooms with automated data recording and out of range alarm systems. The target conditions of the rooms were 68–72° Fahrenheit (F) and 30 – 70% 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 on arrival, transitioning to complete Envigo Teklad® 2020X Certified Rodent Diet on study start) was available *ad libitum*. Animals were provided with treated filtered tap water *ad libitum*. Animals were housed in suspended 7" wide x 10.5" tall x 5" deep plastic cages on a static, stainless steel rack. In general, females were housed in pairs and males were singly housed based on commonly observed fighting injuries in CD-1™ mice.

The APHC Institutional Animal Care and Use Committee approved the animal care and use procedures (Protocol #: 26-20-11-01). Animal care and use was conducted according to "The Guide for the Care and Use of Laboratory Animals" and all applicable Federal and DoD regulations (NRC 2011). The APHC Animal Care and Use Program is fully accredited by the AAALAC International.

5.7.1 Acute Exposures

Male and female CD-1™ mice were obtained from Charles River Laboratory in two separate shipments, acclimated to husbandry conditions for at least 7 days. Two products (n=5/sex/product) plus control (n=5/sex) were tested in the first shipment and five products (n=5/sex/product) plus control (n=5/sex) were tested in the second shipment. Mice were assigned to product and treatment vs. control groups using a bodyweight stratified random method. Stratification is by pre-study mass (summarized in Table 4) to ensure that extremes (highest and lowest weights) are captured across products evenly. Mice were also assigned to a necropsy block (2 or 3/day/formulation=5 total blocks, 2 blocks/product) randomly. Mice were observed and weighed daily for 14 days and then euthanized, necropsied, and tissues weighed on collection. A cage card and permanent tail tattoo uniquely identified each animal.

Table 4. Table of Statistics for Each Shipment of CD-1™ Mice Used in Acute Tests

Formulations	Sex	n	Age (days)	Mean Bodyweight (g)	Bodyweight 95% CI (g)
NRL 502W, NFD 20-391	M	15	55	35.4	(32.3, 40.2)
	F	15	55	26.0	(21.8, 31.0)
Avio Green, ECOPOL A, Enviro, Re-Healing, Buckeye	M	30	52	36.2	(33.3, 39.1)
	F	30	52	28.1	(25.5, 31.7)

Legend:

n = number

g = grams

CI = confidence interval

5.7.2 Subacute Exposures

Male and female CD-1™ mice were obtained from Charles River Laboratories in four shipments (three separate arrival dates) and acclimated to husbandry conditions for at least 5 days. Two products were tested with each cohort of animals except for the last, which was just a single product. Notably, the age of animals varied by test but these conditions were determined by shipping procedures (and resultant shipping procedure issues).

Animals were assigned to a product and dose group by a stratified random process using pre-study bodyweight data (summarized in Table 5) to ensure that body weights did not differ among groups (i.e., product or dose level) within each experiment prior to initiation of dosing. Animals were assigned to 24 animal necropsy date-derived blocks randomly. A cage card and permanent tail tattoo uniquely identified each animal.

Table 5. Table of Statistics for Each Shipment of CD-1™ Mice Used in Subacute Tests

Formulations	Sex	n	Age (days)	Mean Bodyweight (g)	Bodyweight 95% CI (g)
Avio Green, NRL 502W	M	120	57	35.0	(30.9, 40.8)
	F	120	57	27.6	(23.1, 31.2)
ECOPOL A, Re-Healing	M	120	59	34.7	(28.4, 39.6)
	F	120	59	28.6	(24.2, 33.3)
Enviro, NFD 20-391	M	120	(78, 79) ^a	35.5	(31.3, 41.8)
	F	118	(78, 79) ^a	33.1	(28.1, 39.2)
Buckeye	M	60	58	36.8	(31.7, 41.4)
	F	60	58	27.9	(24.4, 30.1)

Legend:

n = number

g = grams

CI = confidence interval

Note:

^a Animals were indiscriminately assigned to treatments from these two ages.

5.8 Dosing and Observations

5.8.1 Acute Exposure ('Limit Test')

Male and female CD-1TM mice were exposed to each product (5/sex/product) once via oral gavage at 2,000 mg/kg. Control animals were not dosed.

Limit test animals were observed daily by study personnel by removing from home cage and weighing. Any signs of modulation of appearance, natural behavior, provoked behavior, and bioenergetics were noted daily (see Appendix D for scoring system).

5.8.2 Subacute Exposure ('28 Day Test')

Male and female CD-1TM mice were exposed to 2,000, 1,000, 500, 250, 125, or 0 (diH₂O) mg/kg-d for 28 consecutive days via oral gavage. Mice were also assigned to a necropsy block (2/day/dose=5 blocks) randomly.

Study personnel observed the 28-day test animals daily in conjunction with dosing. Any signs of modulation of appearance, natural behavior, provoked behavior, and bioenergetics were noted daily (see Appendix D for scoring system). Animals were weighed weekly unless bioenergetic scores showed a pattern of decline—these animals were then weighed daily until bodyweight recovered, the study ended, or the animal was removed from study. High dose (2,000 mg/kg-d) animals were weighed daily to ensure early detection of potential lethality.

The micronucleus assay was conducted on peripheral blood using the MicroFlow[®] PLUS Kit following the manufacturer's instructions. See Appendix E for complete report from Litron. Briefly, after 28 days of dosing, peripheral blood (60 – 120 microliters (µL)) was collected via submandibular venipuncture from male animals exposed to 0, 1,000, and 2,000 mg/kg-d. A satellite group of mice were exposed to 200 mg/kg-d ethyl methanesulphonate (EMS) for 3 days prior to necropsy via oral gavage (3.33 mL/kg of 60 mg/mL EMS using diH₂O as vehicle after vigorous mixing). The blood was placed in a microcentrifuge tube containing 0.35 mL of anticoagulant and stored at 4 – 6 °C prior to fixing. The blood/anticoagulant was fixed by rapidly pipetting 180 µL of blood/anticoagulant into centrifuge tubes containing 2 mL of methanol at -80 °C, vortexing briefly, and returning to -75 to -85 °C for storage. After at least 3 days of fixation, samples were washed with kit-provided wash buffer, spun down to collect the cellular fraction, reconstituted in kit-supplied long term storage solution, and shipped cold to Litron Laboratories for analysis. Litron uses flow cytometry to quantify number of reticulocytes and micronucleated reticulocytes to quantify bone marrow toxicity and genotoxicity respectively.

5.9 Euthanasia, Trunk Blood Collection, Necropsy, and Organ Mass

5.9.1 Acute Exposure ('Limit Test')

After at least 14 days of observation, limit test animals were rendered unconscious with carbon dioxide (CO₂) and euthanized via decapitation.

A full, detailed gross necropsy, including a careful examination of the external surface of the body, all orifices, and the cranial, thoracic, and abdominal cavities and their contents, was performed on all experimental animals following euthanasia. Brain, heart, kidneys, liver, ovaries, uterus, spleen, thymus, testes, and epididymides were removed, trimmed, and weighed. Testes and ovaries were weighed as pairs. Full histopathological examination was not performed.

5.9.2 Subacute Exposure ('28-day Test')

After 28 days of dosing, 28-day test animals were rendered unconscious with CO₂, euthanized via decapitation, and trunk blood was collected for hematological, clinical chemistry, and hormonal analysis (see paragraph 5.10).

A full, detailed gross necropsy, including a careful examination of the external surface of the body, all orifices, and the cranial, thoracic, and abdominal cavities and their contents, was performed on all experimental animals following euthanasia. Brain, heart, kidneys, liver, ovaries, uterus, spleen, thymus, testes, and epididymides were removed, trimmed, and weighed. Testes and ovaries were weighed as pairs.

A selective histopathological examination was performed on liver tissues based on preliminary organ weight findings. As of March 2022, the remaining histopathological analysis of other tissues has not been performed and as the data from combined repeat dose and reproduction and developmental assays will be performed with these products and CD-1TM mice are forthcoming, they will not be included in this report.

5.10 Clinical Chemistry, Hematology, and Thyroid Hormone Analysis

Whole trunk blood was collected in weigh boats. Twenty microliters (20 µL) of whole blood was immediately pipetted into a 1.5 mL microcentrifuge tube containing 120 µL of Cellpack[®] DCL (1:7 dilution). The sample was gently triturated by pipette and immediately analyzed for hematology on the Sysmex XN-10V using Pre-Dilution mode. The remainder of blood in the weigh boats was placed in microcentrifuge tubes, allowed to clot, centrifuged, and the serum was collected and aliquoted for later analyses. Serum aliquots were frozen at -30 °C.

Hematology parameters analyzed on the Sysmex included:

- White blood cells (WBC) (thousand cells per microliter (K/µL)),
- Red blood cells (RBC) (million cells per microliter (M/µL)),
- Hemoglobin (HGB) (grams per deciliter (g/dL)),
- Hematocrit (HCT) (%),
- Mean corpuscular volume (MCV) (femtoliter (fL)),
- Mean corpuscular hemoglobin (MCH) (picogram (pg)),
- Mean corpuscular hemoglobin concentration (MCHC) (g/dL),
- Platelets (PLT) (K/µL),
- Red cell distribution width-standard deviation (RDW-SD) (fL),
- Red cell distribution width-coefficient of variation (RDW-CV) (fL),

- Mean platelet volume (MPV) (fL),
- Nucleated red blood cells, immature (NRBC) (K/ μ L),
- Nucleated red blood cells, immature (NRBC%) (%),
- Neutrophils (NEUT) (K/ μ L),
- Neutrophils (NEUT%) (%),
- Lymphocytes (LYMPH) (K/ μ L),
- Lymphocytes (LYMPH%) (%),
- Monocytes (MONO) (K/ μ L),
- Monocytes (MONO%) (%),
- Eosinophils (EO) (K/ μ L),
- Eosinophils (EO%) (%),
- Basophils (BASO) (K/ μ L),
- Basophils (BASO%) (%),
- Reticulocytes (RET) (K/ μ L),
- Reticulocytes (RET%) (%),
- Immature reticulocyte fraction (IRF) (K/ μ L),
- Immature reticulocyte fraction (IRF%) (%), and
- Reticulocyte hemoglobin equivalent (RET-He) (pg).

For clinical chemistry analyses, serum samples were thawed to room temp and analyzed on the DiaSys respns 910 Vet Analyzer. The nine parameters analyzed were:

- Albumin (ALB),
- Alanine aminotransferase (ALT),
- Aspartate aminotransferase (AST),
- Blood urea nitrogen (BUN),
- Cholesterol (CHOL),
- Glucose (GLUC),
- Total protein (TP),
- Creatinine (CREA), and
- Triglycerides (TRIG).

Three calculated parameters consisted of:

- Globulin (GLOB),
- The ALB/GLOB ratio, and
- The BUN/CREA ratio.

Total triiodothyronine (T3), total thyroxine (T4), and total thyroid-stimulating hormone (TSH) were determined using the MAGPIX[®] analyzer and the Milliplex[®] Rat Thyroid Hormone Magnetic Bead Panel. The assay was validated in mouse serum sample prior to being conducted in the current study according to the kit instructions with the deviation that samples were diluted 1:3 instead of 1:6. Quality control standards were within the target reference ranges. Analysis of bead panel data was performed by xPONENT[®] software (v4.3) as part of the

MAGPIX® system as well as via direct calculation in GraphPad Prism. Only control, 1,000, and 2,000 mg/kg-d (“MediumHigh” and “High”) were analyzed due to sampling constraints.

5.11 Data Collection, Calculations, and Statistical Analyses

Experimental data generated during this study were recorded by hand and tabulated, summarized, and/or statistically analyzed using R (v4.0.2). Environmental data were automatically recorded using MetaSys Building Management System. Data provided by contract laboratories or through calculation systems was recorded digitally and maintained in secure network locations with other study specific data. All relevant raw data are provided in Appendix F and reports will be provided in appendices G-K.

Due to the large amount of data present in these two studies, screening for relevant data or impacts was performed by observation of boxplots (containing median line, 25th (Q1) and 75th (Q3) percentile box, $(Q1, Q3) \pm 1.5 \times \text{inner quartile range (IQR)}$ whiskers, and any values beyond whiskers), William’s trend test, and/or preliminary global hypothesis testing (based on appropriate method for endpoint).

Exploratory data analyses include testing for extreme outliers (data beyond 3 times the interquartile range extremes $(Q3 + 3 \times \text{IQR})$, or $(Q1 - 3 \times \text{IQR})$, normality (Shapiro-Wilk test), homogeneity of variance (Levene’s test, Bartlett’s test) and covariance (Box’s M test (these data are robust to failure of this test due the balanced experimental design)), and observed by eye in a QQ-plot. Removal of extreme outliers was pursued in some cases where biological evidence indicated sample/instrument failure or recording error. Transformations, when needed, were either natural log or using a Box-Cox ‘chooser’ selected based on reasonable common values ($\theta = 2, 3, 0.5$, etc.). Non-parametric tests were used only in limit test organ weights due to uneven and small sample sizes and preclusion of normality indicators. Analyses were conducted for male and female mice separately. *P*-values less than 0.05 were considered significant and Bonferroni adjustments made for multiple comparisons or post-hoc analyses. ANOVA results reported with *F* statistic, degrees of freedom numerator and denominator, in the form “*F*(numerator, denominator)=*F* statistic, *p*=*p*-value.”

With limit test data, median weekly bodyweight was analyzed by mixed effects analysis of variance (ANOVA) (type III, “repeat-measures”) testing effect of product against control. Post-hoc analysis relied on estimated marginal trend contrasts to infer formulation effects. Tissue weights of exposed animals were tested against controls via Mann-Whitney U test (known as Wilcoxon Rank Sum test, among others) or estimated marginal mean contrasts (a la ANCOVA with brain or body weight covariate).

With 28-day test data, each product had control animals, so all measures were tested against a product- and sex-specific control group. Median weekly bodyweight was analyzed by mixed effects ANOVA (type III, “repeat-measures”) testing effect of product against control. Post-hoc tests involved ANOVA tests of individual weeks, cumulative statistics (e.g., percent of starting weight at week 4), and Dunnett’s test to compare differences between all treatments including control. Tissue weights of animals were tested via ANOVA or ANCOVA (estimated marginal means) for either the raw tissue weight or ratio to bodyweight or brain weight depending on

tissue. Brain, heart, kidneys (paired), testes (paired), and epididymides were analyzed using body weight as covariate. Liver weight was analyzed as a ratio of bodyweight and ovaries and adrenal glands analyzed as a ratio to brain weight. Spleen, thymus, and uterus were analyzed as direct weight. These techniques follow the guidance of Bailey et al. (2004).

Clinical chemistry and hematology results were analyzed parameter- and sex-specific with dose as the main effect and parameter response as the response variable. ANOVA with Dunnett's post-hoc test was used to test influence of dose on either raw, natural log transformed, or ranked parameter values.

Micronucleus Assay (MNA) results were analyzed by first assessing the impact of study number to test pooling control animals across all products. The key endpoint analyzed was percent micronucleated reticulocytes as they are new erythrocytes which were developed and potentially damaged during exposure. An ANOVA was used to assess the effect of study and treatment (control vs. EMS) interactions. After confirmation of non-significant effect of study block, all products were compared against pooled control and pooled EMS treatments. ANOVA with Tukey's HSD post-hoc test was used to test influence of product on percent micronucleated reticulocytes and interaction with dose. EMS treatment percent micronucleated reticulocytes pooled distributions never overlapped with control or AFFF treated data and were not tested for significance as they were clearly impactful and showed successfully induction of micronucleus formation in reticulocytes.

Thyroid data were quantified with a (prior validated in mouse) anti-rat ELISA kit from Millipore specific to TSH, T4, and T3. Importantly, due to the plate-specific standard curves and occasional plate-specific impact on quantification of thyroid hormone levels, an estimated marginal mean method was used to control for effects of plate while assessing dose effects on thyroid hormone (analogous to ANCOVA). This method was applied throughout (regardless of actual observed plate effect or not) for consistency across products and interpretation of dose effect. Hormones were analyzed in product-, sex-, and hormone-specific blocks. Due to limitations in sample availability and general screening approach of these studies (and similar to the MNA methods), only the control, 1,000, and 2,000 mg/kg-d ("MediumHigh" and "High") treatments were quantified and analyzed.

Relative liver weights (liver weight (grams (g)) / terminal bodyweight (g)) in males were selected for benchmark dose (BMD) modeling. Dose response models were fit using the {drc} package (Ritz et al., 2015, Ritz et al., 2020) and benchmark doses estimated using the {bmd} package (Jensen et al., 2020, Ritz et al., 2020 (see also Jensen et al., 2019)) in R (v4.0.2). Notably, to facilitate cross-product comparison, initial dose response model fits were performed concurrently on percent of control and raw values. Those formulations with overall responses exceeding 10% above or below control and model slope parameters statistically distinguishable from zero (indicating significant dose response) were selected for BMD and BMD lower limit (BMDL) estimation. BMD and BMDL estimates were derived by using a nonparametric bootstrap (direct resampling of the data) of 5,000 samples with the model selected (of 25) by lowest Akaike Information Criterion (AIC) value. Single BMDLs were also estimated for the model of best fit (via AIC value) using the inverse regression method (analogous to the confidence intervals of the model fit) for visualization and comparison. A benchmark response

(BMR) of 10% hybrid excess risk above a 2 standard deviation (based on the control treatment standard deviation and hybrid standard deviation method) threshold for adverse effect was selected (i.e., a small portion of the expected distribution of relative liver weights exceeding the majority of the control data was used as BMR to estimate BMD).

6 RESULTS

6.1 Analytical Concentration Verification

Table 6 presents results of analytical concentration verification for dosing solutions used in 28-day repeat dose subacute tests. Importantly, methods performed well for products that were Newtonian formulations.

Non-Newtonian formulations (Re-Healing, Enviro, and NFD 20-391) presented layered difficulties associated with varying density due to air bubbles, mixing inadequacies due to the viscous nature of these formulations, and increased variability/error in extraction processes. Accordingly, below nominal concentrations observed during concentration verification were used to represent dosing solutions in analysis, but it is not known whether this adjustment is correct. It is however, the most protective route and representative of other exposure assessments that may occur in the future using similar analytical techniques.

Reports from Laboratory Sciences Directorate are H21-01637, H21-02655, H21-02686, and H21-03358.

Table 6. Table of Dosing Solution Analytical Results in Highest and Lowest Concentrations^a

	Sample Day	Nominal Formulation (mg/mL)	Measured Solvent (mg/mL)	Solvent in Formulation (%)	'Measured' Formulation (mg/mL)	Inside 30% change window?	Percent of Nominal (%)
Avio Green (DGBE)	0	200	29	15.1	192.		-4
	14	200	27	15.1	179.	Yes	-11
	0	12.5	1.4	15.1	9.3		-26
	14	12.5	1.4	15.1	9.3	Yes	-26
NRL 502W (DGBE)	0	200	30	15.9	189.		-6
	14	200	32	15.9	201.	Yes	1
	0	12.5	1.2	15.9	7.5		-40
	14	12.5	1.5	15.9	9.4	Yes	-25
Re-Healing ^b (DGBE)	0	200	11	9.0	122.		-39
	14	200	8.6	9.0	96.	Yes	-52
	0	12.5	0.7	9.0	7.4		-40
	14	12.5	0.7	9.0	7.7	Yes	-39
ECOPOL A (DGBE)	0	200	15	7.3	205.		3
	14	200	14	7.3	192.	Yes	-4
	0	12.5	0.6	7.3	8.2		-34
	14	12.5	0.6	7.3	7.7	Yes	-39
Enviro ^b (DGBE)	0	200	11	8.2	134.		-33
	14	200	10	8.2	122.	Yes	-39
	0	12.5	0.6	8.2	7.1		-43
	14	12.5	0.4	8.2	4.5	No	-64
NFD 20-391 ^b (HG)	0	200	7.4	5.9	125.		-38
	14	200	7.5	5.9	127.	Yes	-37
	0	12.5	0.6	5.9	10.0		-20
	14	12.5	0.5	5.9	7.6	Yes	-39
Buckeye (HG)	0	200	18	9.6	188.		-6
	14	200	20	9.6	208.	Yes	4
	0	12.5	0.9	9.6	9.3		-26
	14	12.5	0.9	9.6	9.8	Yes	-22

Legend:

mg/mL = milligrams per milliliter

DGBE = diethyl glycol monobutyl ether

HG = hexylene glycol

Notes:

Method LOQ: 0.049 mg/mL for DGBE solvent and 0.17 mg/mL for HG.

^a "Inside 30% change window" indicates if day 0 to 14 lead to change in measure concentration (i.e., stability).^b Non-Newtonian formulations do not extract effectively and low recovery does not necessarily indicate low dosing solution.

6.2 Acute Exposure ('Limit Test')

In general, only statistically significant or biologically significant findings are reported in detail. All products and all endpoints were analyzed equally and included in summary tables as "NE" for no effect if no statistically significant finding was detected. Appendices G-J provide selected analyses to support selected results presented in text.

6.2.1 Clinical Observations and Bodyweight Effects

No clinical observations were made that could be attributed to dosing in the limit test. No mortality was observed. Husbandry was adjusted early in acclimation period (pre-exposure) to singly-house male mice due to fighting and subsequent wounds and potential for impactful stress.

Table 7 summarizes the limit test impacts on mice bodyweights. Male limit test mice did not have any outlier bodyweights, passed tests of normality, passed tests of homogeneity of variance and covariance, and resulted in a mixed effects (type III, 'repeat measures') significant interaction effect between week and product ($F(12, 56)=2.05, p=0.037$). Notably, generalized eta squared ('ges,' or η^2) for this ANOVA is 0.007 indicating weak effect size. Post-hoc analysis (ANOVA on product for each week with Bonferroni adjustment) revealed no significant differences between products for any given week. A similar result was observed for percent of starting weight endpoint (Table 7). No effects were seen in measured mass, percent of starting mass, and growth rates in female limit test mice. Note that control animals are not handled during limit test observation period, so these comparisons are by product and identify if a product may be more impactful than the others. Appendix G summarizes additional reporting of analyses.

In summary, the acute LD₅₀ of these seven AFFF are >2,000 mg/kg with at least 14 days of observation. No meaningful patterns in bodyweight were detected between products and control animals.

Table 7. Summary of Statistical Analysis of Influence of Product on Female and Male Bodyweight Endpoints in Limit Test

	Female	Male
Median Weekly Mass (g)	NE	$F(12, 56)=2.05, p=0.037$ Post-Hoc: NE
Daily Mass Change (g/d)	NE	NE
% of Starting Mass (%)	NE	$F(12, 56)=2.14, p=0.028$ Post-Hoc: NE
% of Starting Mass Daily Change (%/d)	NE	NE

Legend:

g = grams

g/d = grams per day

NE = no effect

Note: Rate based endpoints were analyzed by estimated marginal trend techniques. Post-hoc tests in significant mixed effects ANOVAs were ANOVAs on each individual week with Bonferroni adjusted p-values. See methods for explanation of ANOVA results.

6.2.2 Necropsy and Tissue Effects

No effects were noted by pathology team during necropsy. Significant effects in tissues should be interpreted with caution as control sample size is up to 10 while treated groups is maximally up to 5.

Extreme outliers were also excluded on a sex- and tissue-specific level and established as points beyond 3 times the interquartile range of the 25th and 75th percentile ($3 \times \text{IQR} + Q3$, or $3 \times \text{IQR} - Q1$). These points were well established to either be entry errors, pathological preparation errors, or balance operation errors. In total, two tissue values from two unique animals were excluded.

Significant effects were observed in one of seven products. NRL 502W appears to increase male kidney weights based on estimated marginal mean with bodyweight covariate (Global ANCOVA on formulation effect $F(7,36)=3.09$, $p=0.012$; estimated marginal mean contrast of control and NRL 502W $p=0.042$). The effects observed in NRL 502W may be a function of increased excretory activity in kidneys, but given a single high dose and 14 days of recovery, this study design has low power to detect adaptive tissue level responses. See reporting and analyses in Appendix H.

6.3 Subacute Exposure ('28-Day Test')

In general, only statistically significant or biologically significant findings are reported in detail. All products and all endpoints were analyzed equally and included in summary tables as "NE" for no effect if no statistically significant finding was detected. Appendices G-J provide selected analyses to support selected results presented in text.

6.3.1 Clinical Observations and Bodyweight Effects

In '28-day test' exposures, the only clinical observation that could potentially be associated with treatments was transient bloating termed 'flatulent mouse syndrome' (FMS) (Figure 2). Importantly, this was not observed in control animals nor in formulations that used HG, occurred largely in male mice, but cannot be attributed to dose concentrations and was observed in only 23 out of 840 mice (~3%). The progression of FMS usually involved an acute decrease in weight, reduction in active behavior, and marked abdominal bloating. In some cases, animals were removed from study, but others returned to normal size and started gaining weight back shortly after effects emerged. Some inflation of gastrointestinal (GI) tissues (i.e., large intestine, cecum, and colon) was observed during planned necropsies and corroborates those necropsied upon removal from study.

No mortality was observed, indicating LD₅₀ after 28 repeat daily doses was >2,000 mg/kg-d. Bodyweight impacts were detected by hypothesis tests in male mice exposed to Avio Green and ECOPOL A. These impacts were based on bodyweights summarized by percent change between day 0 and median week 4 bodyweights. No impacts were observed in raw bodyweights

or other summary statistics nor in estimated marginal trend analyses of growth rates (g/d). Importantly, detected bodyweight change in ECOPOL A was via global hypothesis test but no significant post-hoc in Dunnett's test ($F(5, 50)=2.794$, $p=0.027$ (ANOVA) Post-Hoc: NE (Dunnett's)). A William's Trend test did find the 1,000 and 2,000 mg/kg-d treatment groups were on a downward trend (t' value $> t'$ critical value) away from the lower doses. The magnitude of this impact was low—the median control percent of starting weight was approximately 0% while the 1,000 and 2,000 mg/kg-d treatment groups' 75th percentiles were approximately 0%. Avio Green, however, impacted male percent of starting mass at week 4 and was detected in a global hypothesis test ($F(5, 51)=2.651$, $p=0.033$ (ANOVA)) and with post-hoc ($p=0.0224$ for control vs. 2,000 mg/kg-d treatment comparison (Dunnett's)) (Figure 3). A William's trend test suggests 1,000 and 2,000 mg/kg-d as on downward trend away from lower treatment groups. The magnitude of effect was greater than ECOPOL A—control animal percent of starting mass 25th quartile was approximately 0% while the 75th percentile of 2,000 mg/kg-d treatment group percent of starting mass was approximately 0%.

See Appendices E and G-K for more details.

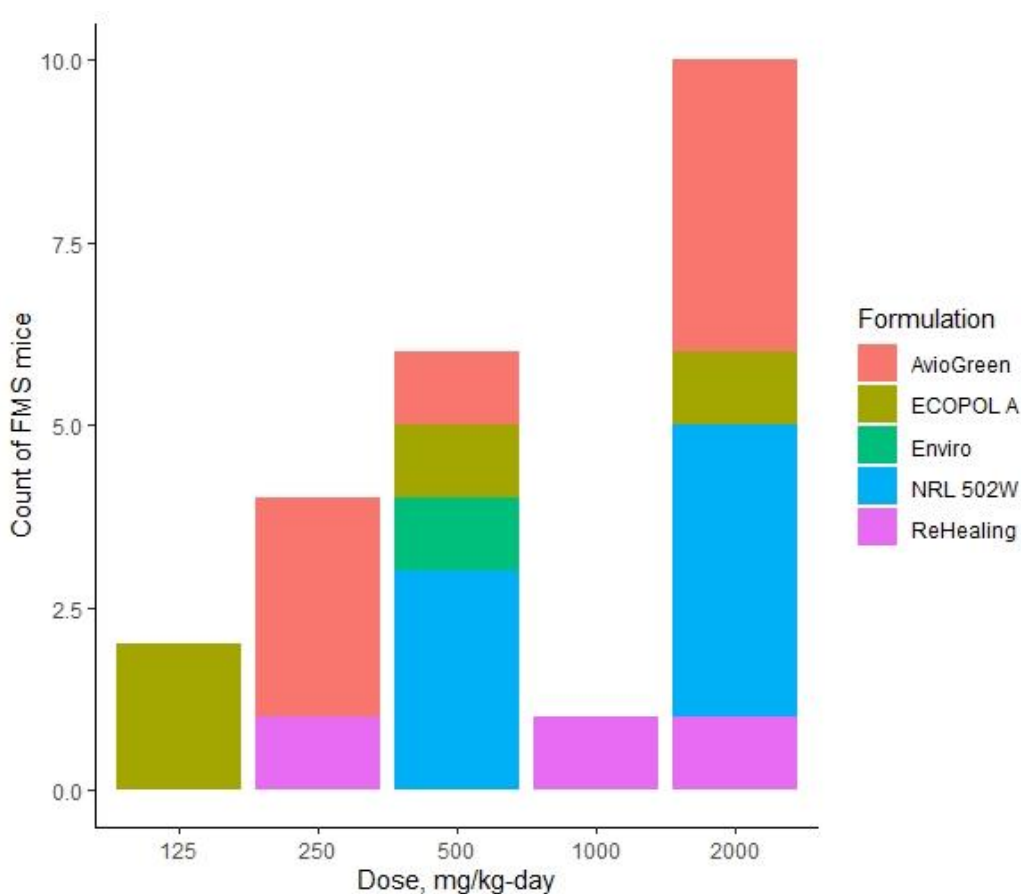


Figure 1. Count of Mice with Observed FMS by Dose and Formulation

Note: Zero were observed in all control treatments and 20-391 and Buckeye formulations.

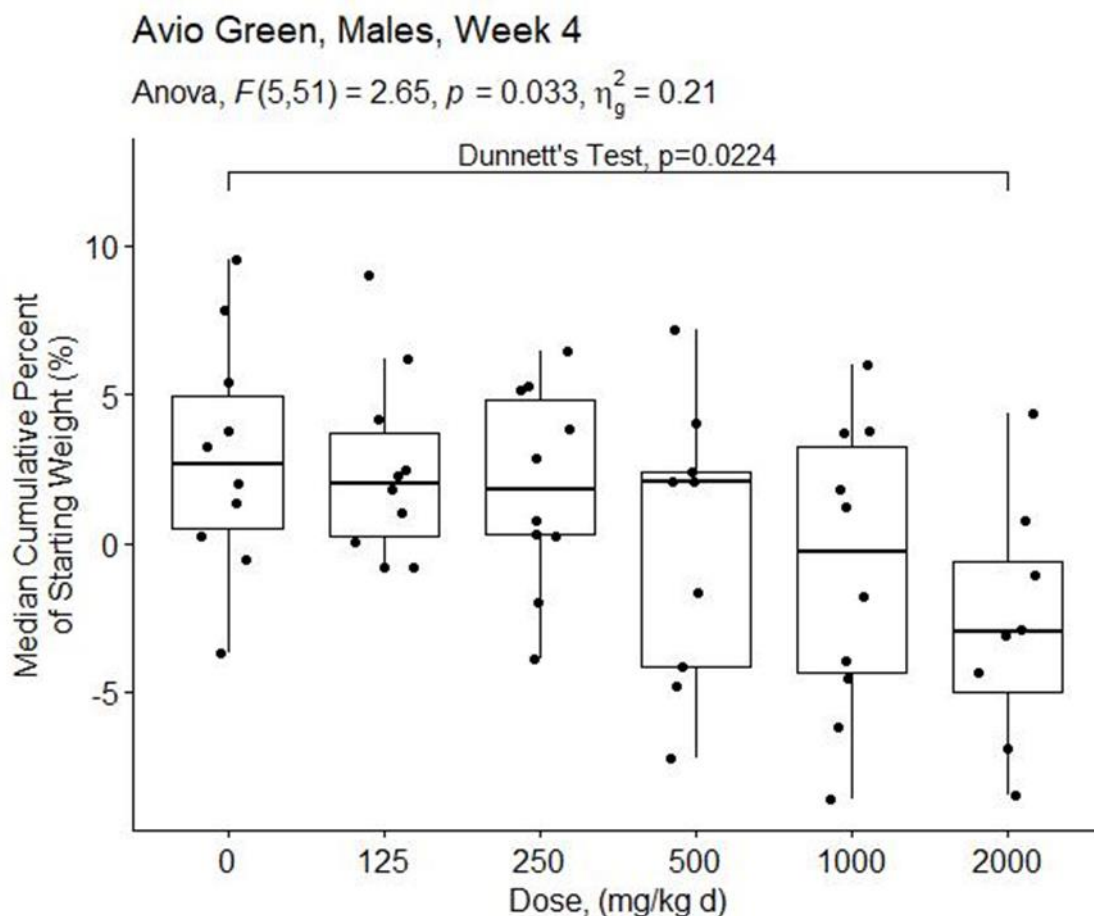


Figure 2. Plot of Median Cumulative Percent of Starting Weight (%) at Day 28 (Week 4) with Dunnett's Test and ANOVA Statistics and Comparisons

Note: Impact in post-hoc Dunnett's test indicates LOAEL of 2,000 mg/kg-d and NOAEL of 1,000 mg/kg-d (p -value=0.0224). Central bar is median, extremes of central box are inner quartile range (IQR), and extent of whiskers is extent of data inside 1.5 times IQR above closest IQR extreme. Points beyond whiskers are greater than 1.5 times IQR from closest IQR extreme.

6.3.2 Necropsy, Tissue Effects, and *Ex Vivo* Assay Results

The only noteworthy observations recorded during necropsy included abdominal (or GI tract) bloating associated with FMS, pale livers, and occasional dehydrated animals without dose related patterns. No apparent lesions or injuries observed were not explained by in-life observations.

Tissue weight impacts associated with dose concentration include adrenal glands (relative to brain weight) and livers (relative to bodyweight). ECOPOL A exposure increased adrenal weight

in female mice exposed to 2,000 mg/kg-d ($F(5, 52)=2.98$, $p=0.019$ (global ANOVA); $p=0.016$ (Dunnett's test, control vs. 2,000 mg/kg-d contrast); supported by William's trend test suggesting 1,000 and 2,000 mg/kg-d treatments are increasing. NRL 502W exposure decreased male relative liver weights (liver (g) / necropsy bodyweight (g)) significantly at the 2,000 mg/kg-d treatment ($F(5,51)=5.34$, $p=0.0005$ (ANOVA); Dunnett's post-hoc on control vs. 2,000 contrast, $p=0.001$) indicating a no observed adverse effect level (NOAEL) of 1,000 mg/kg-d and lowest observed adverse effect level (LOAEL) of 2,000 mg/kg-d (Figure 4). The magnitude of male relative liver decrease from controls is approximately 15% in NRL 502W. Buckeye exposure increased male relative liver weights (liver (g) / necropsy bodyweight (g)) by a larger magnitude and with earlier transition to toxicity (Figure 5). The NOAEL for Buckeye is 250 mg/kg-d and LOAEL is 500 mg/kg-d ($F(5, 54)=8.87$, $p=<0.0001$ (ANOVA); see Figure 5 for multiple Dunnett's contrasts). No other tissues showed significant effects.

Male relative liver weights in Buckeye and NRL 502W are in opposing directions (up vs. down) and indicate differing modes of action. Figure 6 shows male relative liver mass for each formulation with a dose response function and confidence intervals. Clearly, none of the PFAS-free AFFF formulations show increased relative liver weight like Buckeye. Re-Healing, ECOPOL A, and NRL 502W all show decreases—only NRL 502W is significant—but they clearly have the same type of impact on liver tissues. Avio Green, Enviro, and 20-391 do not show any dose-dependent relative liver weight patterns (Figure 6).

Figure 7 shows mean response of male relative liver weights as percent of product specific control. Buckeye and NRL 502W are notated by asterisk (*) to highlight their change exceeding 10% of control. Appendix H includes data on tests of function slopes equal to 0 as well as a model selection results and model parameter estimates. Note that all individual data are not shown for brevity. In Buckeye, the model of best fit was a shifted E-max function with 3 parameters (also known as a 3-parameter Michelis-Menton function) with the following parameterization:

$$f(x, (c, d, e)) = c + (d - c)x(x + e)^{-1} \quad \text{Equation 1}$$

NRL 502W male relative liver weight data is best modeled by a 2-parameter exponential decay function with the following parameterization:

$$f(x, (d, e)) = d \exp(-x/e) \quad \text{Equation 2}$$

Figures 8 and 9 show the dose response functions, confidence intervals, individual and summarized data, as well as inverse regression BMD, BMDL, and BMR (normalized to response scale) for Buckeye and NRL 502W products, respectfully. Table 8 includes BMD and BMDL estimates for Buckeye and NRL 502W products with an additional nonparametric bootstrap estimate for BMDL based on the 5th percentile of BMD estimates for 5,000 resampling

and model fitting of the original individual data. Note that bootstrapping reduces the BMDL by small amounts and represents the more protective BMDL estimate (178 mg/kg-d Buckeye and 641 mg/kg-d NRL 502W).

Hematology effects (Table 9) show variation in impacted parameters across sexes and formulations. Noted responses include NRL 502W male mice showing significant decreases in RBC parameters (RBC, HGB, HCT) at the lowest dose tested (125 mg/kg-d). Avio Green and Buckeye also appear to have opposing impacts on female mice neutrophil parameters—Avio Green increasing their detection and Buckeye decreasing—which may have innate immune response impacts.

Clinical chemistry impacts (Table 10), similar to hematology, show varying effects. However, there is a common pattern of decreased total serum protein in male mice across all the PFAS-free AFFFs, but not in Buckeye. This appears to corroborate the observed decrease in relative liver mass in male mice exposed to the PFAS-free AFFF but not in Buckeye.

Micronucleus results were negative across all products (Appendices I and K) with positive signal from EMS treated male mice.

Thyroid hormones were impacted in female mice exposed to two different PFAS-free AFFFs and each of different specific hormones. T4 (nanograms (ng)/mL) was decreased in female mice exposed to Avio Green and T3 increased in female mice exposed to NRL 502W (Figure 10 and Figure 11). Both were significant at 2,000 mg/kg-d treatment but showed clear patterns of dose-dependence across control, 1,000, and 2,000 mg/kg-d treatments.

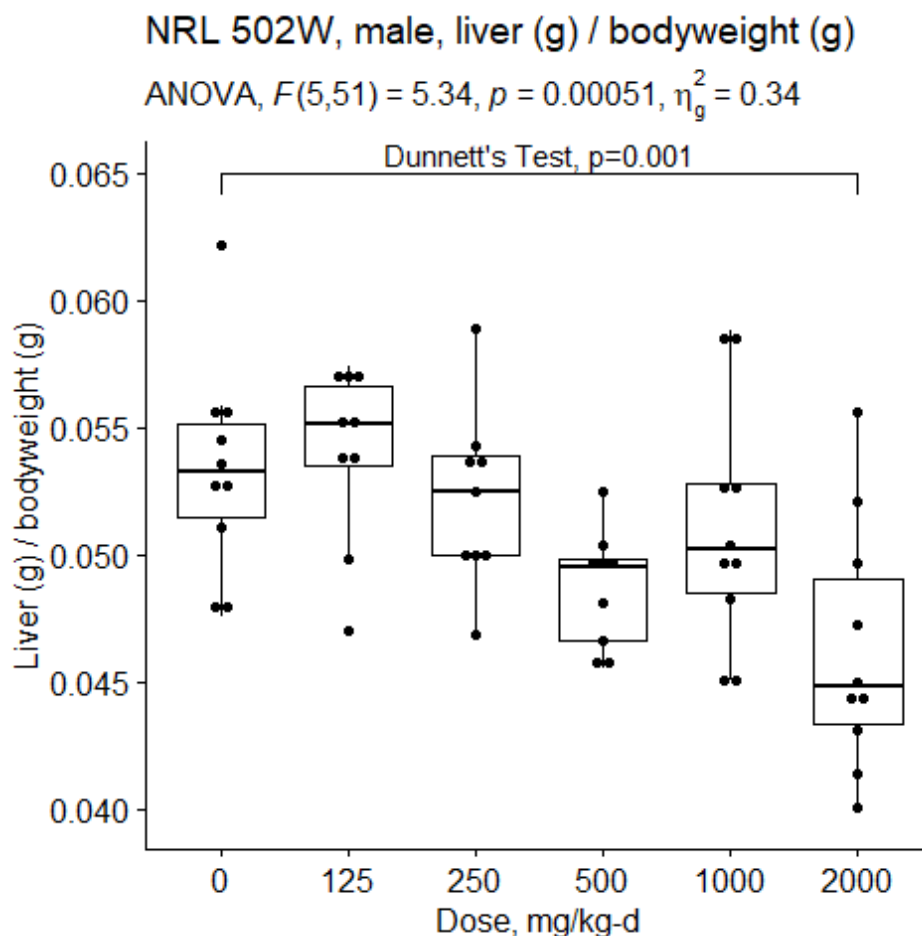


Figure 3. Relative Liver Weight (Liver (g) / Necropsy Bodyweight (g)) of Male CD-1™ Mice Exposed to NRL 502W for 28 Daily Doses

Note: Impact in *post-hoc* test indicates LOAEL of 2,000 mg/kg-d and NOAEL of 1,000 mg/kg-d. Note the direction of relative liver weight is decreasing through increase of dose.

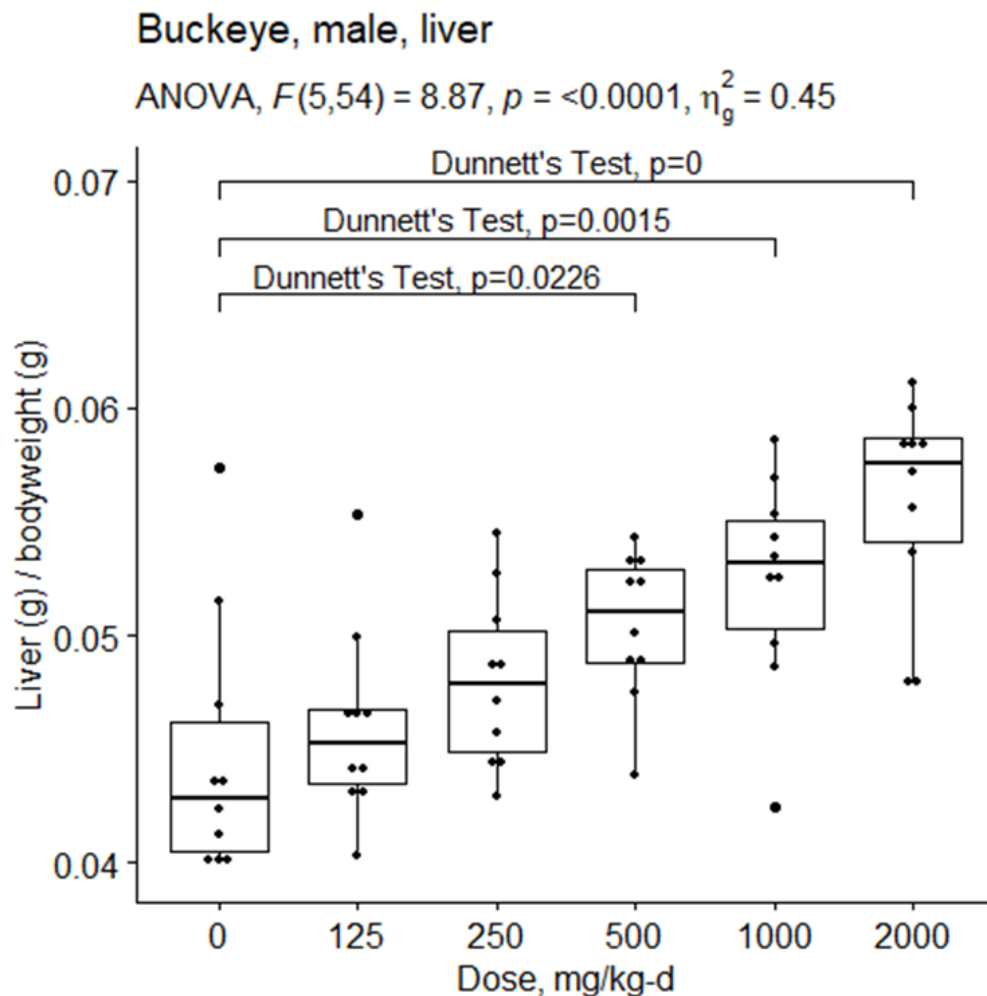


Figure 4. Relative Liver Weight (Liver (g) / Necropsy Bodyweight (g)) of Male CD-1™ Mice Exposed to PFAS-containing AFFF Buckeye for 28 Daily Doses

Note: Impact in *post-hoc* test indicates LOAEL of 500 mg/kg-d and NOAEL of 250 mg/kg-d. Note direction of relative liver weight is increasing through increase of dose.



Figure 5. Male Relative Liver Weight (Liver (g) / Bodyweight (g)) Across Products

Note: Data points are means for each treatment and all are fit with 3-parameter exponential decay dose response function (selected through AIC ranking several dose-response functions in R package {drc}) and confidence intervals are visualized by extremes of color bands. Buckeye and NRL 502W show significant responses in their respective directions. Note that relative liver weight of controls varies based on variation in age of mice at study start.

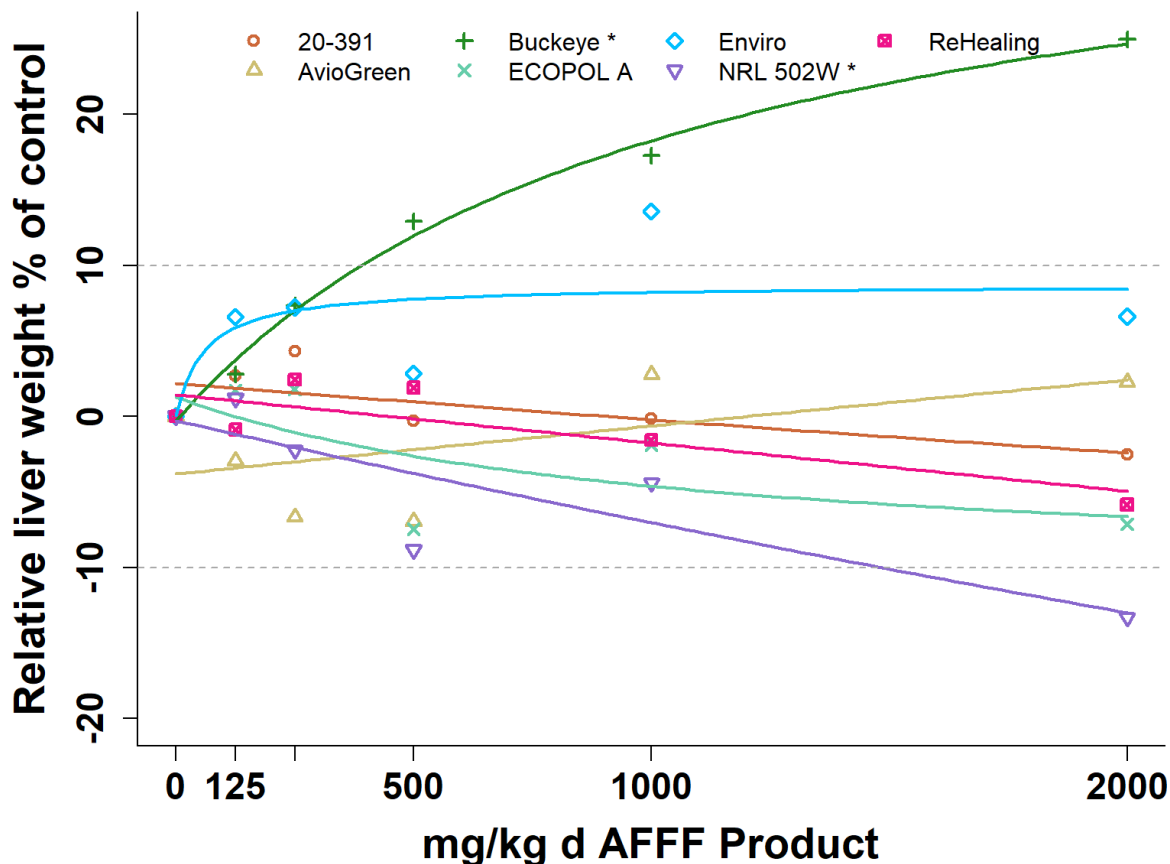


Figure 6. Male Mice Relative Liver Weight (Liver (g) / Terminal Bodyweight (g)) Expressed as Percent Change from Product Specific Control Mean Relative Liver Weight

Note: Points are treatment means (n=8-10 for each) and functions are fit to complete dataset. The function fit is a shifted Emax (3-parameter Michaelis-Menton) selected via lowest AIC value among 25 functions fit using {drc} package in R. Asterisks with Buckeye and NRL 502W indicate that their functions pass beyond biologically relevant 10% deviation (gray dashed lines) and have slopes significantly different than zero (see Appendix H, Table H-9, for *p*-values on tests of slope equal to 0).

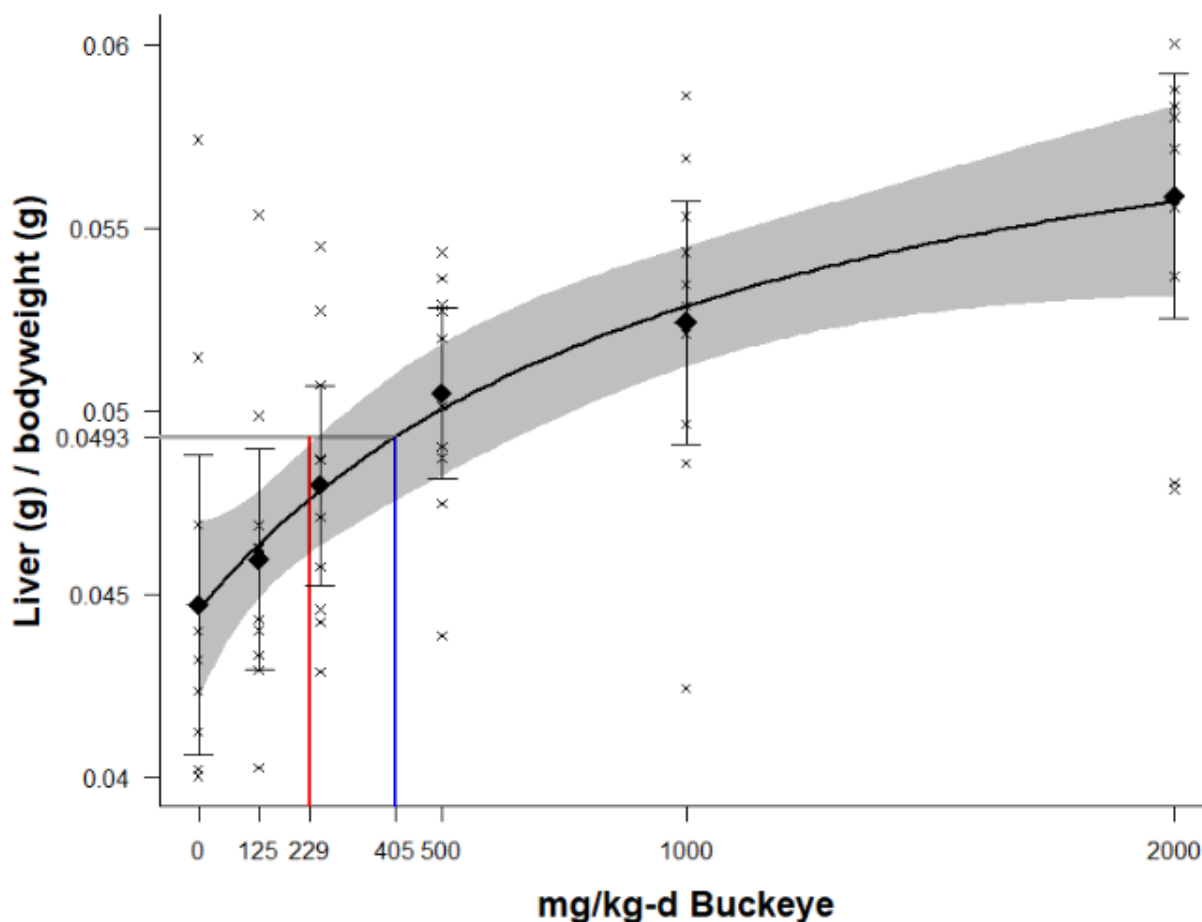


Figure 7. Male Mice Relative Liver Weight (Liver (g) / Terminal Bodyweight (g)) Exposed to Buckeye for 28 Days up to Analytically Verified 2,000 mg/kg-d

Note: Crosses indicate individual data, bold diamonds treatment mean, and error bars based on standard deviation and sample size to calculate a student *t*'s distribution confidence interval (i.e., assumes normal distribution). Bold black line is shifted E-max function (3-parameter Michelis-Menton) fit using individual data (and selected among 25 fitted functions by AIC value) with confidence intervals fit using the {drc} package in R. BMD (blue vertical) and BMDL (red vertical) are estimated using inverse regression confidence interval for a 10% hybrid excess risk definition BMR (gray horizontal) exceedance of two standard deviations (from control group) threshold using the {bmd} package in R. BMR, BMD, and BMDL values are marked on the axes to display their values—on the x-axis the 250 mg/kg-d treatment is obscured.

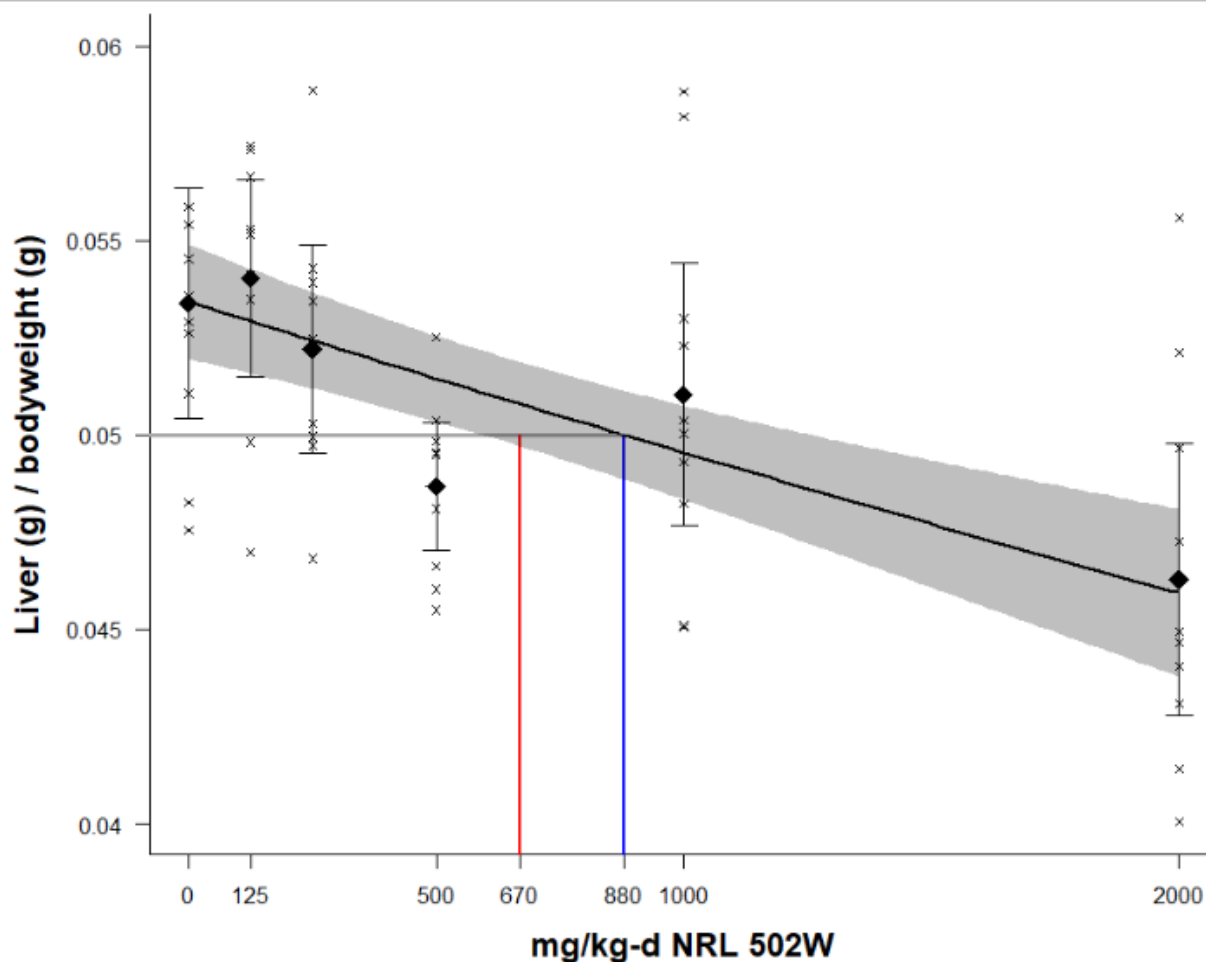


Figure 8. Male Mice Relative Liver Weight (Liver (g) / Terminal Bodyweight (g)) Exposed to NRL 502W for 28 Days up to Analytically Verified 2,000 mg/kg-d

Note: Crosses indicate individual data, bold diamonds treatment mean, and error bars based on standard deviation and sample size to calculate a student *t*'s distribution confidence interval (i.e., assumes normal distribution). Bold black line is E-max function (2-parameter Michelis-Menton) fit using individual data (and selected among 25 fitted functions by AIC value) with confidence intervals fit using the {drc} package in R. BMD (blue vertical) and BMDL (red vertical) are estimated using inverse regression confidence interval for a 10% hybrid excess risk definition BMR (gray horizontal) exceedance of two standard deviations (from control group) threshold using the {bmd} package in R. BMR, BMD, and BMDL values are marked on the axes to display their values—on the y-axis the BMR rounds to 0.050.

Table 8. Benchmark Dose and Benchmark Dose Lower Limit Estimates for Buckeye and NRL 502W for Male Relative Liver Weight

	Method	Model	BMD (mg/kg-d)	BMDL (mg/kg-d)	BMR (liver (g) / terminal bodyweight (g))
Buckeye	Inverse Regression	MM.3	405	229	0.049
	Bootstrap	MM.3	405	178	
NRL 502W	Inverse Regression	EXD.2	880	670	0.050
	Bootstrap	EXD.2	880	641	

Legend:

BMD = benchmark dose

BMDL = benchmark dose lower limit

BMR = benchmark response

g = grams

mg/kg-d = milligrams per kilogram per day

Note:

BMR included adjusted to actual response scale (unitless). BMR represents 10% hybrid excess risk above two standard deviation threshold (control treatment SD). "MM.3" represents 3-parameter Michelis-Menton (shifted E-max) function and "EXD.2" represents 2-parameter exponential decay function.

Table 8. Statistically Significant Impacts on Hematology Parameters

	Peripheral Blood Cells											
	Erythrocytes										Thrombocytes	Erythroblasts
	WBC	RBC	HGB	HCT	MCV	MCH	MCHC	PLT	RDW-SD	RDW-CV	MPV	NRBC %
Buckeye									F↑			
AvioGreen												
ECOPOL A										F↑		
Enviro							M↑					
ReHealing												F↓
NFD 20-391											M↓	
NRL 502W		M↓	M↓	M↓								

	Peripheral Blood Cells													
	Reticulocytes			Leukocytes (Differential WBC Count)										
	IRF	RET-He	RET %	NEUT	NEUT %	LYMPH	LYMPH %	NEU/LYM	Mono	Mono %	EO	EO %	Baso	Baso %
Buckeye				F↓	F↓									
AvioGreen				F↑	F↑		F↓	F↑						
ECOPOL A			F↑											
Enviro			F↑											
ReHealing														
NFD 20-391														
NRL 502W														

Legend:

WBC = white blood cells
 HGB = hemoglobin
 MCV = mean corpuscular volume
 MCHC = mean corpuscular hemoglobin concentration
 RDW-SD = red cell distribution width-standard deviation
 RDW-CV = red cell distribution width-coefficient of variation
 MPV = mean platelet volume
 IRF = immature reticulocyte fraction
 RET%, reticulocytes (%)
 NEUT% = neutrophils (%)
 LYMPH% = lymphocytes (%)
 MONO%, monocytes (%)
 EO% = eosinophils (%)
 BASO%, basophils (%)
 F = female

RBC = red blood cells
 HCT = hematocrit
 MCH = mean corpuscular hemoglobin
 PLT = platelets
 NRBC% = nucleated red blood cells, immature (%)
 RET-He = reticulocyte hemoglobin equivalent
 NEUT = neutrophils
 LYMPH = lymphocytes
 MONO = monocytes
 EO = eosinophils
 BASO = basophils
 M = male

Note:

Only control, 125, and 250 mg/kg-d treatments were analyzed in males here due to impacts of MNA sampling. In NRL 520W, the LOAEL is 125 mg/kg-d and all others are 250 mg/kg-d. In females, impacts are at varying, higher concentration treatment groups. Arrows indicate direction of effect.

Table 9. Statistically Significant Impact on Clinical Chemistry Parameters by Formulation and Organ System Impacted

	liver						kidney			lipid		carb
	ALB	GLOB	ALB/GLOB	ALT	AST	TP	BUN	CREA	BUN/CREA	CHOL	TRIG	GLUC
Buckeye				M ↑	M ↑		M ↑					M ↑
AvioGreen		M ↓				M ↓					F ↓	M ↑
ECOPOL A						M ↓	M ↑		M ↑			
Enviro	M ↓	M ↓		M ↑		M ↓	M ↑					M ↑
ReHealing	M ↓	M ↓				M ↓						M ↑
NFD 20-391					M ↑	M ↓						
NRL 502W					M ↑	M ↓						M ↑

Legend:

ALB = albumin

GLOB = globulin

ALT = alanine aminotransferase

AST = aspartate aminotransferase

TP = total protein

BUN = blood urea nitrogen

CREA = creatinine

CHOL = cholesterol

TRIG = triglycerides

GLUC = glucose

M = male

F = female

Note:

Arrows indicate direction of effect.

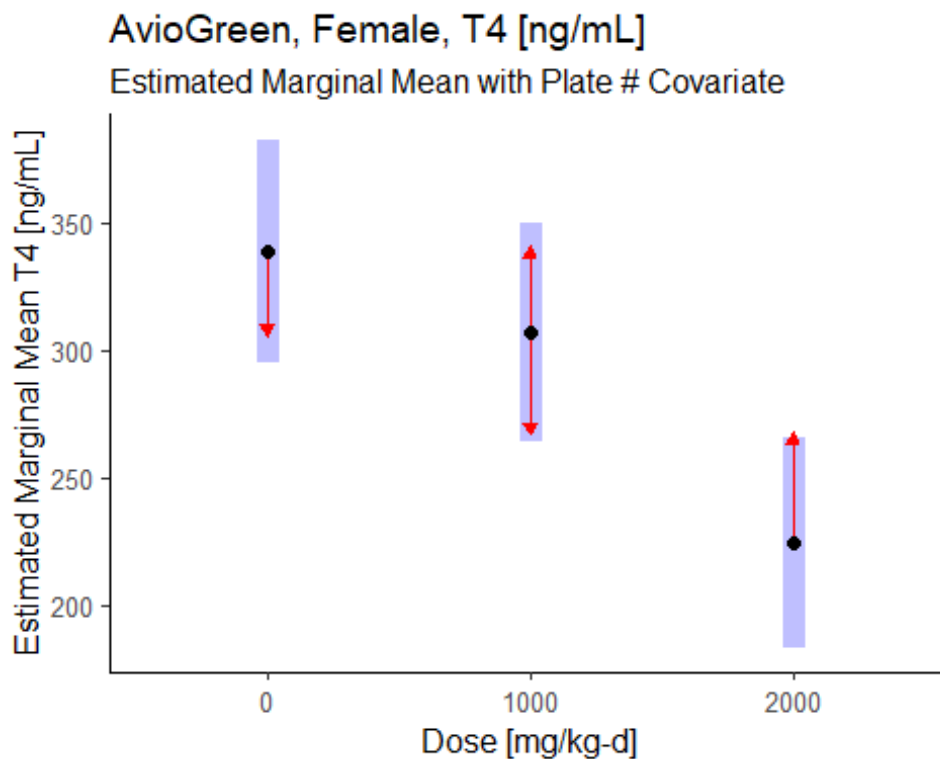


Figure 9. Impact on T4 (ng/mL) Marginal Mean Concentration (with Plate # as Covariate) in Female Mice Exposed to Avio Green

Note: Dot is mean, purple bars are 95% confidence intervals, and red arrows are comparison arrows. Lack of overlap in red arrows indicate significant comparison. Only control (0), 1,000, and 2,000 mg/kg-d were quantified due to sampling constraints.

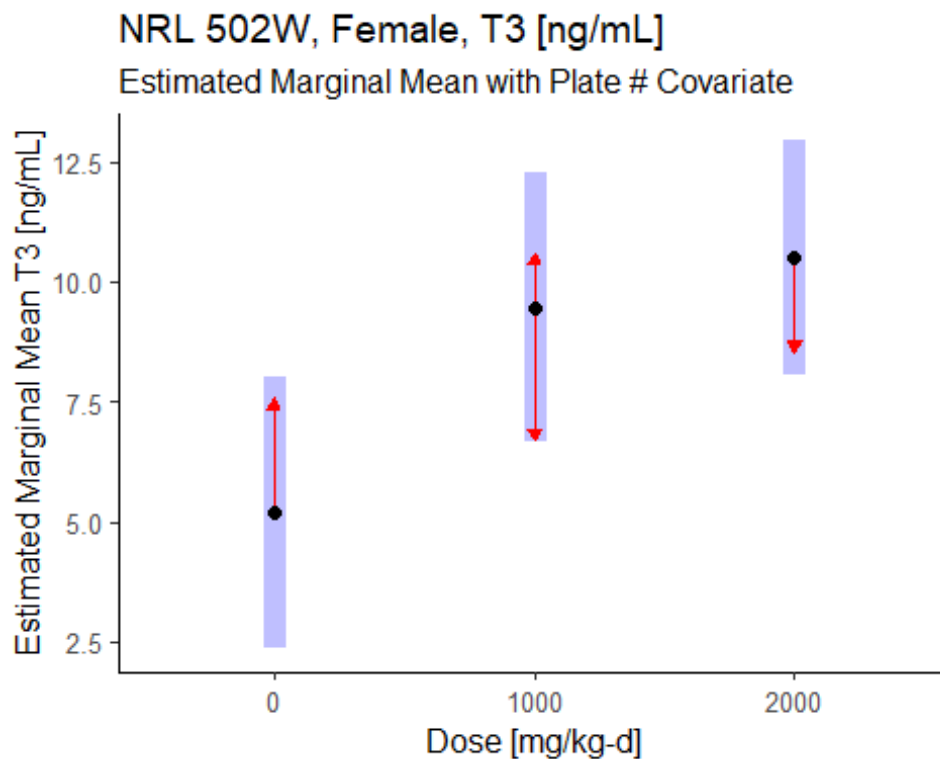


Figure 10. Impact on T3 (ng/mL) Marginal Mean Concentration (with Plate # as Covariate) in Female Mice Exposed to NRL 502W

Note: Dot is mean, purple bars are 95% confidence intervals, and red arrows are comparison arrows. Lack of overlap in red arrows indicate significant comparison. Only control (0), 1,000, and 2,000 mg/kg-d were quantified due to sampling constraints.

6.4 Summary of Results

An overall summary of effects in 28-day tests are presented in Tables 11 and 12. The majority of effects were observed in male mice and at high doses. The endpoints impacted at the lowest concentration were hematological endpoints at 125 mg/kg-d in NRL 502W tests. The most influential endpoint for a product-to-product comparison is relative liver weight and total serum protein. Transient bloating (termed ‘flatulent mouse syndrome’) was an unresolved clinical observation that was associated with formulations containing DGME. Additional reporting of analyses are summarized in Appendices E-K.

Table 10. Partial Collection of Summary Results of 28-day Tests Focused on Mortality, Apical Endpoints, and Organ Weights

	LD ₅₀ (mg/kg-d)	Bodyweight	Organ
BIOEX ECOPOL A 3%	>2,000	M↓	M: Adrenals↑
Fomtec Enviro USP	>2,000	NE	NE
National Foam 20-391	>2,000	NE	NE
National Foam Avio^{F3} Green KHC 3%	>2,000	M↓	NE
NRL 502W	>2,000	NE	M: Liver ↓
Solberg Re-Healing	>2,000	NE	NE
Buckeye	>2,000	NE	M: Liver ↑

Legend:

NE = no effect

M = male

Notes:

Arrows indicate direction of effect.

Significance based on appropriate statistical analysis.

Table 11. Continued Collection of Summary Results of 28-day Tests Focused on ex vivo Assays and Clinical Observations

	Clinical Chemistry ^{a,b}	Hematology	MNA	Thyroid	FMS ^c
BIOEX ECOPOL A 3%	↓(1),↑(2)	NE	NE	NE	4
Fomtec Enviro USP	↓(3),↑(3)	NE	NE	NE	1
National Foam 20-391	↓(1),↑(1)	↑(1)	NE	NE	0
National Foam Avio^{F3} Green KHC 3%	↓(3),↑(1)	↓(1),↑(2)	NE	F,T4 ^e ,↓	8
NRL 502W	↓(1),↑(2)	↓(3) ^d	NE	F,T3 ^f ,↑	7
Solberg Re-Healing	↓(3),↑(1)	↓(1)	NE	NE	3
Buckeye	↑(4)	↓(2)	NE	NE	0

Legend:

NE = no effect

MNA = micronucleus assay

FMS = flatulent mouse syndrome

Notes:

^a Count of parameters with changes

^b All formulations except Buckeye had decrease in total protein

^c Count of all observed bloating cases

^d Impact at 125 mg/kg-d—no NOAEL determined

^e Thyroxine (T3)

^f Triiodothyronine (T4)

7 DISCUSSION

By and large, the short term toxicity of PFAS-free and PFAS-containing AFFFs is not defined by lethality. This is likely due to the well described low toxicity of disclosed surfactant and solvent

constituents. It is also likely influenced by the dilute state of potentially toxic constituents in the concentrated products, which when diluted to even extremely high doses (2,000 mg/kg-d is approximately a 20% v/v dilute of concentrate product) remains a relatively low concentration of potentially toxic constituents.

Nonetheless, patterns of toxicity did emerge that aided ranking PFAS-free AFFF by toxicity. Relative liver weights were useful in (1) differentiating between PFAS-free and PFAS-containing AFFF and (2) capturing gradation in response of PFAS-free AFFFs. Buckeye showed an increase in relative liver weight, which corroborates prior observed liver weight increases with PFAS exposure (potentially related to lipid dysregulation and/or formation of vacuoles). PFAS-free AFFF showed either no response or a decrease in liver weight. Combined with a decrease in serum total protein across PFAS-free AFFF, it is plausible that some liver damage is occurring. Within the PFAS-free AFFF, NRL 502W showed a significant decrease with a BMDL of 641 mg/kg-d, Re-Healing and ECOPOL A trended downward sans significance, and Avio Green, Enviro, and 20-391 showed no response.

Overall, exposure to NRL 502W induced reduced RBCs in male mice exposed to 125 mg/kg-d, a significant dose-response of liver weight with BMDL at 641 mg/kg-d, increased T3 concentration in female mice, and the second highest incidence of FMS. Exposure to Avio Green induced cumulative decreases in the bodyweight of male mice, the highest incidence of FMS, and decreased female T4 levels. NFD 20-391 showed the least impacted endpoints and no incidence of FMS and thus, should be considered the least toxic PFAS-free AFFF tested herein.

Buckeye, as a PFAS-containing AFFF, was included as a reference. However, given its relative liver weight impacts, it is not the least toxic AFFF considered here. In fact, Buckeye's BMDL of 178 mg/kg-d (relative liver weight) against the LOAEL of NRL 502W (125 mg/kg-d for RBC effects), makes it the second most toxic AFFF considered herein.

8 CONCLUSIONS

In conclusion, the toxicological profile of PFAS-free AFFFs in short-term, high concentration exposures is different than a PFAS-containing AFFF. When scaled to GHS classification, all products qualify as low hazards except for NRL 502W, which scores as a moderate hazard based on RBC impacts at 125 mg/kg-d. Further refined rankings will be supported by reproductive and developmental combined repeat dose screening tests occurring 2022 through 2025 at APHC.

9 POINT OF CONTACT

Questions pertaining to this report should be referred to Andrew East, 410-436-3980, or by e-mail: usarmy.apg.medcom-aphc.mbx.tox-info@mail.mil.

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Andrew G. East, M.S.
Biologist, Health Effects Research Division

Approved by:

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Michael J. Quinn, Jr., Ph.D.
Chief, Health Effects Division

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Mark S. Johnson, Ph.D.
Director, Toxicology

Appendix A

References

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Appendix B

Quality Assurance Statement

FOR: Toxicology Study No. S.0079790-FY and S.0082073-FY, Protocol No. 26-20-11-01: acute and subacute toxicological effects in CD-1™ mice (Mus musculus) exposed to PFAS-free and PFAS-containing aqueous film-forming foam (AFFF) products, January 2021 – December 2021, the following critical phases were inspected/audited Quality Systems and Regulatory Compliance Office (QSARC):

Study Specific Critical Phase Inspected/Audited	Date Inspected /Audited	Date Reported to Management/SD
Study Protocol Good Laboratory Practice Standards and Animal Care Review	10/27/2020	10/27/2020

Study Specific Critical Phase Inspected/Audited	Date Inspected /Audited	Date Reported to Management/SD
Test Article Storage, Control, Mixing, and Labeling	06/24/2021	07/01/2021
Test System Facilities, Identification, Husbandry, Feed and Water Supply & Enrichment	06/24/2021	07/01/2021
Necropsy Gross Macroscopic Pathology Exam, tissue collection and tissue preservation procedures and sub-study endpoint criteria	09/24/2021	09/24/2021
Histopathology Procedures and Protocol and SOP compliance	09/24/2021	09/24/2021
Necropsy Study Personnel Qualifications, Training Records Review and Good Documentation Procedures	09/24/2021	09/24/2021
Necropsy Procedures, Maintenance and Calibration of Equipment and Good Documentation Procedures	09/24/2021	09/24/2021
Interim Study Report and Raw Data Good Laboratory Practice Review	04/28/2022	05/05/2022

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: 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

Note 3: 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 and are also listed here in accordance with QA Standard Operating Procedure.

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On Behalf of Michael P. Kefauver
Quality Assurance Specialist, QSARC

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

C-2. PERSONNEL

Management: Mark Johnson, Ph.D., D.A.B.T., Director, Toxicology Directorate; Michael J. Quinn, Ph.D., Chief, Health Effects Research Division (HEF); Mr. Arthur J. O'Neill, Chief, Toxicity Evaluation Division (TEV).

Study Director: Allison M. Narizzano, Toxicologist, TEV.

Quality Assurance: Michael P. Kefauver, Quality Assurance Specialist, Quality System and Regulatory Compliance.

Veterinary Support and Animal Care: Alicia Gehling, MAJ, DVM, MPH; Rebecca Kilby, Animal Health Technician.

In-Life Support: Taryn K. Brown, Biological Science Technician, TEV; Allison M. Narizzano, Toxicologist, TEV; Caroline L. Procell, Laboratory Technician, HEF; Mark R. Way, Biologist, TEV; Andrew G. East, Biologist, HEF.

Necropsy: Norman Kreiselmeier, COL, DVM, Toxicologic Pathologist, TOX-PATH; Andrew G. East, Biologist, HEF; Allison M. Narizzano, Toxicologist, TEV; Shannon Y. Pilcher, ORISE Fellow, TOX-PATH; Caroline L. Procell, ORISE Fellow, HEF; Alicia A. Shiflett, Lab Manager, TOX-PATH; Mark R. Way, Biologist, TEV; Shannon E. Creswell, ORISE Fellow, TOX-PATH.

Archivist: Lee C.B. Crouse, Biologist, TEV.

Appendix D

Protocol and Modification

MEMORANDUM FOR Ms. Allison Narizzano

SUBJECT: Protocol Approval

1. The U.S. Army Public Health Center's Institutional Animal Care and Use Committee (IACUC) has approved your protocol entitled, "**Ecotoxicity of New Film-Forming Foams: Acute and subacute toxicity tests in *Mus musculus***".
2. Your protocol has been assigned an IACUC approval number: **20-11-01**. Please refer to this number in all further correspondence regarding this protocol. The complete protocol study number including test type code is **26-20-11-01**.
3. Please report the total number of animals actually used and pain categories to the IACUC when your protocol is completed or at the end of the fiscal year, whichever is sooner. If you have not finished your protocol by the end of the fiscal year, report the animal numbers used through 30 September and their corresponding pain categories for the USDA report on the protocol annual review form. You will receive this annual form in October of each year the protocol is open.
4. The protocol must be followed exactly as you have described it to the IACUC. If you wish to make procedural changes, or require more animals than you anticipated, you must submit a protocol modification explaining the change(s) to be made to the protocol, and include a justification for the change(s) to your original protocol. Contact the Animal Use and Review Office for information on submitting a protocol modification.
5. As the Principal Investigator/Study Director of this protocol, you are responsible for:
 - a. Coordinating a pre-protocol planning meeting with the Veterinary Staff, in advance of receiving animals for the study, and
 - b. Ensuring that the conduct of the study by all participants is in accordance with the procedures outlined in the approved protocol and associated standing operating procedures, and all participants adhere to the IACUC local guidance documents.
 - c. Ensuring that all required training for personnel listed on the protocol is documented and provided to the AURO. Training documents may be sent to usarmy.apg.medcom-aphc.mbx.qsarc-auro@mail.mil.

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IACUC Chair

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ARMY PUBLIC HEALTH CENTER
PROTOCOL REVIEW AND APPROVAL FORM

Test Type: 26

IACUC protocol number: 20-11-01

TITLE: Ecotoxicity of New Film-Forming Foams: Acute and subacute toxicity tests in *Mus musculus*

1. PRINCIPAL INVESTIGATOR/ STUDY DIRECTOR

Printed Name (First, MI, Last)

Title/ Division/ Program/ Directorate

Allison, M. Narizzano

Biologist/Toxicity Evaluation Division/Toxicology

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2020-09-11

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(SD/PI will sign here before submitting protocol to the IACUC office)

2. SCIENTIFIC/ PEER REVIEW

Printed Name (First, MI, Last)

Title/ Division/ Program/ Directorate

Valerie, H, Adams

Biologist/Health Effects Division/Toxicology

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3. STATISTICAL REVIEW

Printed Name (First, MI, Last)

Title/ Division/ Program/ Directorate

Bonnie J Taylor

Statistician/OOD

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4. ATTENDING VETERINARIAN REVIEW

Printed Name (First, MI, Last)

Title/ Division/ Program/ Directorate

Alicia M Gehling

Chief, Veterinary Support Office

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Date

Signature

5. IACUC APPROVAL

Date: 2020-11-10

Printed Name (First, MI, Last)

Signature

Kristin T. Newkirk

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6. INSTITUTIONAL OFFICIAL REVIEW

Printed Name (First, MI, Last)

Signature

Steven B. Cersovsky

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DOD IACUC Protocol

1.0 General Information

Please enter the full title of your study:

Ecotoxicity of New Film-Forming Foams: Acute and subacute toxicity tests in *Mus musculus*

Please enter the "Protocol Number" you would like to use to reference the protocol:

Note: This field allows you to enter an abbreviated version of the Protocol Title to quickly identify this protocol.

26-20-11-01

2.0 Add Site(s)

2.1 List site(s) associated with this study:

	Primary Dept?	Department Name
+	☐	
-	☒	Army: APHC (U.S. Army Public Health Center)

3.0 Assign project personnel access to the project

3.1 Please add a Principal Investigator for the study:

Allison M. Narizzano

Select PI status, if applicable

For IACUC use only

DOD E-IACUC protocol format
Version 2.0, 10/2017

IACUC number 26-20-11-01

IACUC approval date 10 Nov 2020

IACUC expiration date 10 Nov 2023

3.2 If applicable, please select the Research Staff personnel:

A) Additional Investigators

	Name	Role
☐		
☐	Lindsay A. Holden	Co-Investigator
☐		
☐	Andrew G. East	Co-Investigator
☐		

B) Research Support Staff

	Name	Role
☐		
☐	Meredith Bohannon	Team Member
☐		
☐	Taryn Brown	Team Member
☐		
☐	Lee Crouse	Team Member
☐		
☐	Blas Guigni	Team Member
☐		
☐	Theresa Hanna	Team Member
☐		
☐	Rebecca Kilby	Team Member
☐		
☐	Emily Lent	Team Member
☐		
☐	Caroline Procell	Team Member
☐		
☐	Michael Quinn	Team Member
☐		
☐	Lindsey Ward	Team Member
☐		
☐	Mark Way	Team Member
☐		

3.3 Please add a Protocol Contact:

The Protocol Contact(s) will receive all important system notifications along with the Principal Investigator. (i.e. The protocol contact(s) are typically either the Protocol Coordinator or the Principal Investigator themselves).

allison.m.narizzano.civ@mail.mil

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4.0 Funding

4.1 Would you like to state your funding information?

☒ Yes

☐ No

	Funding Source	Fund Code	Grant title(s)
+			
-			

The table below is used for **other** funding sources

	Other Funding Source	Other Funding Code	Grant title(s)
+	Strategic Environmental Research and	ER20-1508	Assessing the Ecotoxicity of Fluorine-Free
-	Development Program (SERDP)		Surfactant Formulations in Mice

5.0 Animal(s) Used

5.1 List the animals used on this protocol:

***Note: Each species should be entered into a separate chart.**

Animal Species	CD-1 mouse
Scientific Name (genus/species)	Mus musculus
Is Species USDA-regulated?	☐ Click if Yes
Strain, if applicable	CrI:CD1(ICR)
Sex	Male/Female
Age:	young adult
Weight	appropriate for age
Wildlife?	☐ Click if Yes
Laboratory?	☒ Click if Yes
Stock #/Order Code	022
Special Care	N/A
Special Conditions	N/A
Unique anatomical features/ phenotype:	N/A

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USDA pain category	USDA Category	Number requested
	B	0
	C	28
	D	0
	E	518
Total Number Requested:	546 (acute toxicity tests with 7 formulations)	
Animal Species	CD-1 mouse	
Scientific Name (genus/species)	Mus musculus	
Is Species USDA-regulated?	☐ Click if Yes	
Strain, if applicable	CrI:CD1(ICR)	
Sex	Female	
Age:	young adult	
Weight	appropriate for age	
Wildlife?	☐ Click if Yes	
Laboratory?	☒ Click if Yes	
Stock #/Order Code	022	
Special Care	N/A	
Special Conditions	N/A	
Unique anatomical features/ phenotype:	N/A	
USDA pain category	USDA Category	Number requested
	B	0
	C	128
	D	0
	E	0
Total Number Requested:	128 (pilot test to optimize antibody response)	
Animal Species	CD-1 mouse	
Scientific Name (genus/species)	Mus musculus	
Is Species USDA-regulated?	☐ Click if Yes	
Strain, if applicable	CrI:CD1(ICR)	

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Sex	Male/Female	
Age:	young adult	
Weight	appropriate for age	
Wildlife?	☐ Click if Yes	
Laboratory?	☐ Click if Yes	
Stock #/Order Code	022	
Special Care	N/A	
Special Conditions	N/A	
Unique anatomical features/ phenotype:	N/A	
USDA pain category	USDA Category	Number requested
	B	0
	C	140
	D	140
	E	581
Total Number Requested:	861 (subacute toxicity tests with 7 formulations)	

Add another Species:

+

-

6.0 Study Personnel Qualifications and Training

6.1 All personnel performing observations, procedures, euthanasia, and/or manipulations described in the protocol must be identified and appropriately trained and qualified to perform these procedures.

	Name	Qualifications	Procedures Performed	Training
+ -	Allison Narizzano	PhD Toxicology; 10+ years animal research experience	handling & observations	6/4/09; 2/18/15; 3/12/15; 12/8/16; 12/20/16; 12/22/16; 1/24/2017; 9/6/17; 2/20/18; 3/7/18
+ -			oral gavage	12/8/16; 12/20/16; 12/30/16; 3/5/18; 3/6/18; 3/7/18; 3/12/18; 3/13/18; 3/14/18
+ -			IP injection	2/18/15; 3/12/15; 12/20/16; 9/6/17; 9/13/17

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+			submandibular venipuncture	6/19/12; 12/20/16; 12/22/16; 12/30/16
-				
+			saphenous venipuncture*	
-				
+			CO2 anesthesia/euthanasia	3/12/15; 6/29/17; 7/6/17; 8/30/17; 9/6/17; 9/13/17; 10/17/17
-				
+			decapitation and exsanguination	7/6/17; 8/30/17; 9/6/17; 9/13/17
-				
+	Lindsay Holden	PhD Biology; 10+ years animal research experience	handling & observations	9/14/18; 11/1/18
-				
+			oral gavage	10/2/18; 11/1/18
-				
+			IP injection	9/4/19; 9/6/19
-				
+			submandibular venipuncture*	
-				
+			saphenous venipuncture*	
-				
+			CO2 anesthesia/euthanasia	9/24/20
-				
+			decapitation and exsanguination	9/24/20
-				
+		MS Environmental Science; 10+ years animal research experience	handling & observations	9/24/20
-	Andrew East			
+			oral gavage	9/24/20
-				
+			IP injection	9/24/20
-				
+			submandibular venipuncture*	
-				
+			saphenous venipuncture*	
-				
+			CO2 anesthesia/euthanasia	9/24/20
-				
+			decapitation and exsanguination	9/24/20
-				
+		PhD Biology; 10+ years animal research experience	handling & observations	7/8/19; 8/26/19; 8/28/19, 9/4/19, 9/6/19
-	Meredith Bohannon			
+			oral gavage	9/13/19; 9/16/19
-				
+			IP injection	9/4/19; 9/6/19
-				
+			submandibular venipuncture*	
-				

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+			saphenous venipuncture*	
-				
+			CO2 anesthesia/euthanasia	9/17/19
-				
+			decapitation and exsanguination	9/17/19
-				
+				
-	Taryn Brown	AS Business Administration; 1+ years animal research experience	handling & observations	4/25/19; 8/7/19
+				
-			oral gavage	9/13/19
+				
-			IP injection	9/4/19; 9/6/19
+				
-			submandibular venipuncture*	
+			saphenous venipuncture*	
-				
+			CO2 anesthesia/euthanasia	4/25/19; 5/28/19; 9/17/19
-				
+			decapitation and exsanguination	9/17/19
-				
+				
-	Lee Crouse	MS Environmental Sciences; 20+ years animal research experience	handling & observations	12/8/16; 12/20/16; 8/7/19
+				
-			oral gavage	8/12/16
+				
-			IP injection	12/20/16; 9/4/19
+				
-			submandibular venipuncture	12/20/16
+			saphenous venipuncture*	
-				
+			CO2 anesthesia/euthanasia	9/17/19
-				
+			decapitation and exsanguination	9/17/19
-				
+				
-	Blas Guigni	PhD Molecular Physiology; 6+ years animal research experience	handling & observations	9/12/19; 9/13/19; 9/16/19
+				
-			oral gavage	9/12/19; 9/13/19; 9/16/19
+				
-			IP injection	9/12/19
+				
-			submandibular venipuncture*	

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+			saphenous venipuncture*	
-				
+			CO2 anesthesia/euthanasia	9/17/19
-				
+			decapitation and exsanguination	9/17/19
-				
+				10/14/08; 6/30/11;
-	Theresa Hanna	ALAT; 18+ years animal research experience	handling & observations	2/12/15; 2/18/15; 2/25/15; 3/12/15; 12/12/16; 12/20/16; 4/25/19; 8/7/19
+			oral gavage	10/14/08; 12/20/16
-				
+			IP injection	9/4/19; 9/6/19
-				
+			submandibular venipuncture	6/30/11; 6/19/12; 12/20/16
-				
+			saphenous venipuncture*	
-				
+			CO2 anesthesia/euthanasia	2/12/15; 4/25/19; 9/17/19
-				
+			decapitation and exsanguination	9/17/19
-				
+				10/14/08; 6/30/11;
-	Rebecca Kilby	ALAT, RVT, B.S., Organizational Management; 26+ years animal research experience	handling & observations	12/8/16; 12/12/16; 1/24/17
+			oral gavage	12/8/16; 12/22/16; 9/7/18; 9/10/18; 9/11/18; 10/2/18
-				
+			IP injection	10/14/08; 6/30/11
-				
+			submandibular venipuncture	N/A
-				
+			saphenous venipuncture	N/A
-				
+			CO2 anesthesia/euthanasia	05/8/09; 06/24/09; 12/5/17
-				
+			decapitation and exsanguination	7/23/19
-				
+				10/12/07; 12/11/07; 1/23/08; 10/14/08;
-	Emily Lent	PhD Natural Resources and Environmental Studies; 20+ years animal research experience	handling & observations	2/12/15; 2/18/15; 12/12/16; 12/20/16
+			oral gavage	10/14/08; 12/20/16
-				
+			IP injection	N/A
-				

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+			submandibular venipuncture	10/14/08; 12/20/16
-				
+			saphenous venipuncture*	
-				
+			CO2 anesthesia/euthanasia	N/A
-				
+			decapitation and exsanguination	N/A
-				
+	Caroline Procell	BS Biology; 5+ years animal experience	handling & observations	12/20/16; 12/22/16; 1/24/17; 2/20/18; 3/7/18; 4/25/19
-				
+			oral gavage	8/20/18; 8/21/18; 8/22/18; 9/5/18; 9/6/18; 9/10/18; 9/11/18; 10/2/18
-				
+			IP injection	12/20/16
-				
+			submandibular venipuncture	12/20/16; 12/22/16
-				
+			saphenous venipuncture*	
-				
+			CO2 anesthesia/euthanasia	8/30/17; 9/13/17; 10/17/2017
-				
+			decapitation and exsanguination	8/30/17; 10/10/19
-				
+				
-	Michael Quinn	PhD Animal Sciences; 20+ years animal research experience	handling & observations	6/21/05; 10/14/08; 6/30/11; 2/25/15; 3/12/15; 12/20/16; 12/22/16; 09/6/17; 1/24/17
+				
-			oral gavage	10/14/08; 12/20/16; 12/22/16; 3/5/18; 3/6/18; 3/7/18; 3/12/18; 3/13/18; 3/14/18
+				
-			IP injection	6/30/11; 2/25/15; 3/12/15; 12/20/16; 9/6/17
+				
-			submandibular venipuncture	6/30/11; 5/1/12; 12/20/16; 12/22/16
+				
-			saphenous venipuncture	N/A
+				
-			CO2 anesthesia/euthanasia	3/12/15; 6/29/19; 7/6/17; 8/30/17; 9/6/17; 9/13/17
+				
-			decapitation and exsanguination	7/6/17; 8/30/17; 9/6/17; 9/13/17
+				
-	Lindsey Ward	RLAT, A.S. Business Administration, 10+ years animal research experience	handling & observations	4/5/18; 3/21/19; 10/28/19; 9/10/19, 9/12/19

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+			oral gavage	3/21/19; 9/10/19
-				
+			IP injection	9/6/19
-				
+			submandibular venipuncture	N/A
-				
+			saphenous venipuncture	N/A
-				
+			CO2 anesthesia/euthanasia	5/4/19; 9/17/19; 12/5/19
-				
+			vaginal lavage	N/A
-				
+			decapitation and exsanguination	05/21/19; 8/2/19; 9/17/19
-				
+				5/17/07; 6/24/09; 2/12/15; 2/18/15; 2/25/15; 3/12/15; 12/8/16; 12/20/16; 12/30/16; 1/24/17; 9/6/17; 2/20/18; 3/7/18; 4/25/19
-	Mark Way	BS Biology; 20+ years animal research experience	handling & observations	
+				12/8/16; 12/20/16; 12/22/16; 12/30/16; 3/5/18; 3/6/18; 3/7/18; 3/12/18; 3/13/18; 3/14/18
-			oral gavage	
+				2/12/15; 2/18/15; 2/25/15; 3/12/15; 12/20/16; 8/30/17; 9/6/17
-			IP injection	
+			submandibular venipuncture	12/20/16; 12/22/16
-				
+			saphenous venipuncture*	
-				
+			CO2 anesthesia/euthanasia	6/24/09; 2/12/15; 3/12/15; 6/29/17; 7/6/17; 8/30/17; 9/6/17; 10/17/17; 4/25/19
-				
+			decapitation and exsanguination	9/6/17; 9/13/17
-				
+	* denotes that personnel will ultimately be trained on this procedure. Personnel WILL NOT conduct * procedures until (i) training is conducted, (ii) documentation is provided to the IACUC, and (iii) personnel are approved to perform the procedure via a protocol modification.			
-				

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6.2 Please identify the emergency contact(s) for animal care/disposition (or other critical needs) for this protocol:

	Name	Telephone Number(s)
+ -	Allison Narizzano	work: [REDACTED]
+ -	Lindsay Holden	work: [REDACTED]
+ -	Andrew East	work: [REDACTED]

6.3 Does this protocol involve the use of animals for human medical training?

☐ Yes

☒ No

7.0 Objective/Hypothesis/Background/Relevance

7.1 Objective/Hypothesis

State the objective of this protocol and/or the hypothesis to be accepted or rejected.

The main objective of these tests is to assess and compare the possible health effects of seven film-forming foams by administering them orally to CD-1 mice (*Mus musculus*). Of the seven film-forming foams, one is a reference formulation (Buckeye Platinum Plus C6 MILSPEC 3%), four are commercially available formulations (National Foam AVIO F3 Green PHC 3%, Bio-Ex ECOPOLA 3% FFF, Fomtec ENVIRO 2-3% FFF, and Solberg Re-healing Foam), and two are newly developed formulations (National Foam NFD 20-391 Formulation and NRL 502W Siloxane-based Formulation). Each of these formulations will be assessed in acute and subacute toxicity tests, for a total of 14 tests (7 formulations x 2 tests = 12 tests total).

First, acute toxicity tests will be conducted with each formulation to determine an LD50 using the stagewise adaptive dose method (SADM) (ASTM, 2011). Then, subacute, 28-day oral repeated-dose toxicity tests will be conducted with each formulation. Results from the subacute toxicity test will be used to set doses for future combined repeated-dose toxicity studies and reproduction/developmental toxicity screening tests with each formulation, to be covered in a separate protocol.

7.2 Non-Technical Synopsis

Provide a brief, narrative description of the proposal that is easily understood by a high school graduate. Include a brief description of animal use in your description.

Aqueous film-forming foams (AFFFs) are fire extinguishing agents commonly used for Class B fires (*i.e.*, flammable liquid fires). The foams cover the surface of flaming liquid and prevent oxygen from fueling the fire and flammable vapors from leaving the surface of fuel. Additionally, the aqueous solution cools surrounding structures, which helps to prevent burnback.

Fluorine-free AFFFs are being developed and tested for their efficacy and potential to elicit adverse effects in animals or humans. Given the novelty of the fluorine-free AFFFs and the paucity of

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toxicological data on them, coarse toxicity evaluation is necessary to avoid regrettable substitutions (*i.e.*, replacing PFAS with something similarly or more toxic).

Seven separate formulations will be administered orally to mice. The ultimate goal of these tests is to compare the toxicity of new and legacy formulations. Each of these formulations will be assessed in acute (single dose administered) and subacute (daily repeated doses administered) toxicity tests. Animals will be observed daily for signs of toxicity.

In a pilot test to optimize antibody response, animals will receive an injection of keyhole limpet hemocyanin (KLH).

Following the dosing regimen for each test, animals will be euthanized and blood and tissues will be collected for examination.

7.3 Background

Include a brief statement of the requirement or need for the information being sought. A description of the general approach should be provided. The literature or the experience that led to the proposal may be briefly reviewed, reference cited. Acronyms and abbreviations must be spelled out on first-time use. Standard formatting for all scientific taxa and agents applies.

AFFFs have been used by the Department of Defense (DoD) since they were first developed by the United States (U.S.) Navy and 3M in the mid-1960s. The key ingredients of legacy AFFFs are per- and polyfluoroalkyl substances (PFAS), which are a group of man-made chemicals that are persistent in the environment and bioaccumulative in humans and laboratory species. Out of the thousands of known PFAS, the toxicity of only a small number have been studied extensively, particularly perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). PFOS and PFOA have been found to cause adverse effects in laboratory studies and are associated with human health effects from epidemiological data.

The Fiscal Year (FY) 2020 National Defense Authorization Act (NDAA) states that using fluorinated AFFFs will be prohibited on military installations beginning September 30, 2025. As such, the Environmental Security Technology Certification Program (ESTCP) is funding the development of fluorine-free surfactant formulations and testing them to determine whether any of these formulations can meet the current military performance requirements. Concurrently, the Strategic Environmental Research and Development Program (SERDP) is funding research to understand the toxicity of these formulations. Per SERDPs Statement of Need (SON), "these foams contain novel chemistries with potentially many complex mixtures of chemicals" and "results should yield a rank order of the relative toxicity of each foam formulation" (SERDP, 2019). By conducting acute and sub-acute tests with each formulation, we will gain a basic toxicological understanding and refine doses for combined repeated-dose toxicity studies and reproduction/developmental toxicity screening tests, which will be described in a separate protocol.

7.4 Military Relevance

Provide a brief and succinct reason for the research with regard to military needs and mission requirements.

The DoD and the larger fire-fighting industry has an urgent need for new, environmentally neutral and reduced toxicity foaming agents and foam stabilizers to replace PFAS in AFFFs. ESTCP is funding the development of fluorine-free surfactant formulations and testing them to determine whether any of these

formulations can meet the current military performance requirements. Concurrently, SERDP is funding research to understand the toxicity of these formulations in relation to historical AFFFs.

PFAS are known to be persistent, mildly bioaccumulative, and toxic. Per the Toxic Substances Control Act (TSCA), replacements should have reduced persistence, bioaccumulation, and toxicity. While the replacements are designed to meet performance criteria and have reduced persistence and bioaccumulation, the toxicity of these formulations have not been evaluated.

8.0 Literature Search for Duplication

8.1 Is a literature search required ?

☒ Yes

☐ No -- This protocol uses animals solely for training purposes or breeding colonies and therefore is duplicative by nature.

Literature search details:

* Date of search should be within 6 months of protocol submission to IACUC.

** **Results of Search:** Based on the literature search, indicate why this study is not unnecessarily duplicative. Provide written narrative, not just a list of articles found.

*** **Add a new row** for each source necessary.

	Source Searched	Date of Search	Dates covered by Search	Search Strategy for Keywords	Results of Search
+ -	PubMed	13 August 2020	1900-2020	Buckeye Platinum Plus C6 MILSPEC 3% and toxicity	Given that these formulations are novel and that toxicity testing with mixtures is complex, these searches were not expected yield duplicative results. 0 results found.
+ -	PubMed	13 August 2020	1900-2020	National Foam AVIO F3 Green PHC 3% and toxicity	Given that these formulations are novel and that toxicity testing with mixtures is complex, these searches were not expected yield duplicative results. 0 results found.
+ -	PubMed	13 August 2020	1900-2020	Bio-Ex ECOPOLA 3% FFF and toxicity	Given that these formulations are novel and that toxicity testing with mixtures is complex, these searches were not expected yield duplicative results. 0 results found.
+ -	PubMed	13 August 2020	1900-2020	Fomtec ENVIRO 2-3% FFF and toxicity	Given that these formulations are novel and that toxicity testing with mixtures is complex, these searches were not expected yield duplicative results. 0 results found.

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☐	☐					
☐	☐					
	PubMed	20 October 2020	1900-2020	Solberg Re-healing Foam and toxicity	Given that these formulations are novel and that toxicity testing with mixtures is complex, these searches were not expected yield duplicative results.	
					0 results found.	
☐	☐					
☐	☐					
	PubMed	13 August 2020	1900-2020	National Foam NFD 20-391 Formulation and toxicity	Given that these formulations are novel and that toxicity testing with mixtures is complex, these searches were not expected yield duplicative results.	
					5 results were found, all of which were due to the word "formulation."	
☐	☐					
☐	☐					
	PubMed	13 August 2020	1900-2020	NRL 502W Siloxane-based Formulation and toxicity	Given that these formulations are novel and that toxicity testing with mixtures is complex, these searches were not expected yield duplicative results.	
					0 results found.	
☐	☐					
☐	☐					
	PubMed	13 August 2020	1900-2020	fluorine free foam AND toxicity	1 result was found, which was an epidemiological study of exposure to brominated flame retardants at childcare facilities. As such, results are not duplicative of the proposed experiments.	
☐	☐					
☐	☐					
	PubMed	13 August 2020	1900-2020	aqueous film forming foam OR AFFF AND toxicity	98 results were found, 10 of which were relevant. Of these, 5 were related to fate and transport of PFAS; 2 were related to remediation, 2 were related to biomonitoring, and 1 was a subacute toxicity test with Japanese quail exposed to PFOS and/or PFOA. As such, results are not duplicative of the proposed experiments.	
☐	☐					
☐	☐					
	NIH RePORTER	13 August 2020	1995-2020	Buckeye Platinum Plus C6 MILSPEC 3% and toxicity	0 results found.	
☐	☐					
☐	☐					
	NIH RePORTER	13 August 2020	1995-2020	National Foam AVIO F3 Green PHC 3% and toxicity	0 results found.	
☐	☐					
☐	☐					
	NIH RePORTER	13 August 2020	1995-2020	Bio-Ex ECOPOLA 3% FFF and toxicity	0 results found.	
☐	☐					
☐	☐					
	NIH RePORTER	13 August 2020	1995-2020	Fomtec ENVIRO 2-3% FFF and toxicity	0 results found.	
☐	☐					
☐	☐					
	NIH RePORTER	20 October 2020	1995-2020	Solberg Re-healing Foam and toxicity	0 results found.	

+					2 results were found. both of which were general contracts for chemistry support services associated with toxicological evaluation underway at the National Toxicology Program, including polyurethane foam. As such, results are not duplicative of the proposed experiments.
-					
	NIH RePORTER	13 August 2020	1995-2020	National Foam NFD 20-391 Formulation and toxicity	
+					
-	NIH RePORTER	13 August 2020	1995-2020	NRL 502W Siloxane-based Formulation and toxicity	0 results found.
+					
-	NIH RePORTER	13 August 2020	1995-2020	fluorine free foam AND toxicity	0 results found.
+					
-					681 results were found, most of which were multi-year projects related to biomonitoring exposures to military-relevant chemicals. One project was related to monitoring PFAS in municipal water systems. As such, results are not duplicative of the proposed experiments.
	NIH RePORTER	13 August 2020	1995-2020	aqueous film forming foam OR AFFF AND toxicity	

9.0 Materials and Methods

9.1 Experimental Design and General Procedures:

Provide a complete description of the proposed use of animals, allowing the reader to follow an animal through the course of the study from start to finish. It should include a summary table and/or flow chart of the experimental groups and/or breeding scheme(s). Outline the scientific plan and direction of experimentation. If several experiments or sequential studies are to be included in the protocol, describe the experimental design of each separate experiment. The number requested must equal the minimum number required to complete the study yet be sufficient to yield meaningful results. Technical methodology (e.g. injections, surgical methods, etc.) need not be described in this section.

A. TEST ARTICLE FORMULATIONS AND EXPOSURE MODE:

In these tests, seven separate formulations (two new, four existing, and one reference) will be administered orally to CD-1 mice (*Mus musculus*) at a range of dilutions. The seven formulations in this study are Buckeye Platinum Plus C6 MILSPEC 3%, National Foam AVIO F3 Green PHC 3%, Bio-Ex ECOPLA 3% FFF, Fomtec ENVIRO 2-3% FFF, Solberg Re-healing Foam, National Foam NFD 20-391 Formulation, and NRL 502W Siloxane-based Formulation). Although four of these formulations are commercially available, extensive toxicity testing has not been conducted with any of the formulations (see 8.1). Furthermore, there is a paucity of data on the toxicity of the constituents themselves (**see Figure 1**).

Based on their unique chemical and physical properties, each formulation will be prepared in a suitable solvent (e.g., water or methanol) to create stock solutions that are diluted with an appropriate vehicle to make the dosing solutions. By design, surface-active compounds are mutually hydro- and lipophobic (stain-resistant), therefore they are challenging to suspend in water (Narizzano, 2020, ITRC 2020). Furthermore, per the SON, "these foams contain novel chemistries with potentially many complex mixtures of chemicals" (SERDP, 2019). Although every attempt will be made to elucidate mixing for each formulation prior to initiating the animal experiments, flexibility in how solutions will be prepared is scientifically necessary, as changes may need to be made mid-experiment if unforeseen issues arise.

The frequency with which dosing solutions or suspensions are prepared will depend on the formulations' stability in solution. The solvent and vehicle used for the seven formulations may differ. Examples of appropriate solvents are Tween, methanol, ethanol, etc. Examples of appropriate vehicles are filtered water, deionized water, PFAS-free water, corn oil, etc. Solvents such as Tween 20, methanol, and ethanol are frequently used in toxicological work to improve the solubility of otherwise poorly soluble compounds. Forming a uniform solution or suspension is required to deliver the intended dosage accurately and consistently. So long as the toxicological characteristics of solvents and/or vehicles are known, they can safely be used without confounding results and compromising animal lives and data integrity (OECD 2008, Bartsch *et al.*, 1976).

Stock formulations will be stored at room temperature (e.g., 20 ± 5 °C) in fluorine-free, High Density Poly Ethylene (HDPE) bottles wrapped to prevent UV exposure. Dosing solutions or suspensions will be mixed or rocked during dosing, to prevent the formulations from partitioning (a property which precludes dosing via water bottles). Concentration verification and stability analysis will be conducted prior to, concurrent with, and/or following the experiments. Constant concentration dosing via oral gavage will be used based on maximum dose volume restrictions and minimum feasible delivery options. The maximum dose volume given in a single dose will not exceed 10 ml/kg of body weight, per Laboratory Animal Data: Quick Reference Guide (2014). Doses will be calculated according to the most recent body weight measurement.

B. ANIMAL IDENTIFICATION:

Animals will be identified by cage cards according to QSARC 804 (APHC, 2019). An identification number or feature (e.g., the last 3 digits of the animal number) may be marked on each animal (e.g., permanent tattoo on the tail, ear notch, or ear tag; Primary Investigator (PI) will provide ear tags, as necessary). If animals are uniquely identified via a permanent tail tattoo, procedures will be performed in accordance with QSARC SOP 818 (APHC, 2020).

C. OBSERVATIONS:

A thorough physical examination of each animal will be performed by study personnel at a similar time at least once a week. The examination process may take place in conjunction with dosing. The examination process will consist of each animal being removed from its home cage, individually handled, and carefully observed. Observations will include, but are not limited to: evaluation of the skin, 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 backward). Once daily, an in-cage, general clinical observation of each animal will be performed by study personnel and/or animal care staff. All animals will be observed for signs of toxicity, morbidity, and mortality.

D. STUDY DESIGN:

Acute toxicity tests (with 7 formulations):

The objectives are to (i) determine the acute oral median lethal dose (LD50) and slope constant of each formulation in CD-1 mice and (ii) set dosage levels for the subacute tests. Female rodents are generally preferred for acute toxicity testing, because historical data indicate that females, in most instances, have lower LD50 values than males (ASTM, 2011, USEPA, 2002). An additional test may be conducted with male rodents, if it is suspected that the substance is more toxic to males than females.

As demonstrated in the Literature Search for Duplication (8.1), there are no published studies with the

seven formulations in this protocol. However, sex differences (*i.e.*, accumulation, elimination, target organs) are widely reported with PFAS (Butenhoff *et al.*, 2004, Chang *et al.*, 2012, Huang *et al.*, 2019, Kim *et al.*, 2016, Lou *et al.*, 2009, Ohmori *et al.*, 2003, NTP 2019a, b, Sundstrom *et al.*, 2012). Specifically, when the National Toxicology Program (NTP) conducted acute toxicity tests with male and female rats exposed to various, individual PFAS, two chemicals were found to have higher LD50 values in females than in males (NTP 2019a, b). Taken together with supporting kinetic and toxicity information from the literature, in follow-up repeated-dose studies (28 days), females were administered higher doses than males. As such, the acute toxicity tests described herein will be conducted in male and female mice. Doing so is scientifically necessary, and will help in determining doses for follow-up subacute studies.

The general procedures of the acute tests will follow the USEPA Health Effects Test Guidelines for Acute Oral Toxicity OPPTS 870.1100 (USEPA, 2002), but use the ASTM SADM E1163-10 (ASTM, 2011) instead of the Up-Down-Procedure. Although the ASTM SADM is specific to rats, OPPTS 870.1100 is broader and recommends "healthy young adult animals of commonly used laboratory strains." As such, OPPTS 870.1100 is more appropriate for the studies described herein. All dosing will occur via oral gavage as described in section 15.17.

If a formulation is expected to be relatively non-toxic, based on *in vitro* toxicity tests and/or modeling the constituents of the formulation, a limit test may be conducted. Per OPPTS 870.1100 "the limit test can be used efficiently to identify chemicals that are likely to have low acute toxicity." By doing so, dosing animals at 1/3 log intervals of 2000 mg/kg (*e.g.*, 93, 200, 431, and 928 mg/kg), per OPPTS 870.1100 and ASTM 2011, may be unnecessary, which is a reduction in overall animal use. Specifically, the limit test uses 5 animals/sex whereas stage 1 of the SADM uses 12 animals/sex.

Separate limit tests will be conducted for males and females. In the limit test, five animals are sequentially prefasted (3-4 hours), dosed via oral gavage with 2000 mg/kg, and observed for 14 days for signs of toxicity, morbidity and mortality. If three or more animals die, the LD50 is less than 2000 and the SADM will commence. If three or more animals survive, two additional animals will be dosed at 2000 mg/kg. Per OPPTS 870.1100, "if a limit test is performed at 2000 [rather than 5000 mg/kg], animals should be dosed sequentially and testing should be performed on ALL five animals."

If a formulation is expected to be somewhat toxic, based on *in vitro* toxicity tests and/or modeling the constituents of the formulation, OR if toxicity cannot be predicted, the limit test will not be conducted. Instead, the SADM will be performed. The SADM occurs in multiple stages (**see Table 1**). In each stage, a small group of animals (**12/sex**) is prefasted (3-4 hours), dosed via oral gavage, and observed for up to 14 days for signs of toxicity, morbidity and mortality. Subsequent iterations of dosing and observations are initiated following completion of previous stages. The post-dosing observation window may be reduced (*i.e.*, from 14 days to 24-48 hours) in subsequent stages. ASTM E1163-10 recommends that the first stage include 1-2 animals per group in 3-5 dose groups (excluding vehicle control) that are expected to span the range from 0% mortality to 100% mortality. Due to limited toxicity data on the seven formulations, 12 animals/sex will be used to assess each formulation in the first stage with oral dose set at 1/3 log intervals (*e.g.*, 0, 93, 200, 431, 928, and 2000 mg/kg). If a limit test is conducted prior to initiating stage 1, the sixth dose (*i.e.*, 2000 mg/kg) will be excluded, as it will already have been evaluated.

For the second stage of the SADM, 4 log distributed doses that bracket the lethal dose observed in the first stage will be used with 3 animals/dose for each formulation. If stage three (or beyond) is needed, a similar approach will be used with an additional 4 dose groups and 3 animals/dose for each formulation. Dosing will stop when (i) the ratio between the interconfidence interval range and twice the LD50 is less

than or equal to 0.4 or (ii) 78 animals have been used (per formulation), whichever comes first. The ratio is determined after each stage of dosing.

The LD50 determination will use up to 78 animals per formulation (see Table 1). If fewer than 78 animals provide sufficient results, the remaining animals will be (i) used to pilot an immune assay, (ii) transferred to another approved protocol, (iii) used for testing with a different formulation, or (iv) humanely euthanized per QSARC 800 (APHC, 2017a). A caveat to this third option is that testing with each formulation *must* be completed with the animals from the same shipment.

All surviving, dosed animals will be rendered unconscious with CO2 gas (section 11.5), euthanized (section 17.1), and will undergo gross necropsy at the end of the 14-day observation period. Animals that are found dead or are euthanized prior to the end of the observation period will also undergo a gross necropsy. Blood and tissues will not be analyzed from any treated animals in the acute toxicity tests; however, blood may be collected from untreated/vehicle control animals for the pilot test.

Pilot test to optimize antibody response:

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 (Burlinson, 1995). The T-cell Dependent Antibody Response (TDAR) is considered a sensitive measure of the functionality of the immune system as it requires the appropriate interaction between dendritic cells (antigen presenting cells), T-cells and B-cells for the production of antibodies (Holsapple, 2005, Holsapple 2003, Luster *et al.*, 2003, Gore *et al.*, 2004). 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). While testing adult populations may miss critical immunological development windows, using the TDAR assay to measure immunotoxicity in adults that were exposed both gestationally and postnatally permits the assessment of these critical windows. Thus, the most appropriate population to use for the TDAR is the first filial (F1) generation of future combined repeated dose toxicity studies and reproduction/developmental toxicity screening tests. Prior to conducting the TDAR test on F1 generation animals, the test needs to be piloted.

This test may be conducted in several replicates, depending on if/when there are excess animals from the acute toxicity tests. Alternatively, 128 animals will be ordered for the test (**see Table 2**).

Animals (128 total) will be divided into 16 groups of 8 animals. The dosing regimen is depicted in **Figure 2**. First, animals will be biosampled via submandibular or saphenous venipuncture as described in sections 15.9 and 15.17. Next, animals will receive 7 consecutive daily doses via oral gavage of the immunosuppressant cyclophosphamide (CPS, 0-100 mg/kg-day) in phosphate buffer solution (PBS), per section 15.17. Doses of CPS are based on the literature (White *et al.*, 2007). Then, 5 days prior to euthanasia, animals will receive 1 injection of KLH (0-5 mg/kg, not to exceed 10mg/kg) in PBS, per sections 15.1 and 15.17. Doses of KLH are slightly higher than what was used by White *et al.*, 2007 due to the difference in exposure route (*i.e.*, intraperitoneal vs. intravenous injection). At the conclusion of the test, animals will be rendered unconscious with CO2 gas (section 11.5), euthanized (section 17.1), and trunk blood will be collected. Then, blood will be analyzed via Enzyme-Linked Immunosorbent Assay (ELISA) to assess antibody response. The results of the pilot will be used to determine the doses of KLH for the developmental immunotoxicity component of the combined repeated dose toxicity studies and reproduction/developmental toxicity screening tests.

Subacute toxicity tests (with 7 formulations):

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The objectives are to (i) determine if there are adverse, non-lethal effects from short-term repetitive oral exposures and (ii) determine doses for future combined repeated-dose toxicity studies and reproduction/developmental toxicity screening tests with each formulation. The subacute tests will have a staggered start.

Each 28-day test will include five treated groups and a vehicle control group. Two formulations will be tested at a time, which *may* enable the use of a shared vehicle control group (*i.e.*, a reduction in overall animal use). Since the vehicle controls will depend on the chemical/physical properties of each formulations, the number of animals requested (**see Table 3**) is conservative and includes a separate vehicle control group for each formulation (*i.e.*, **n=6 groups X 10M+10F per formulation**, see Table 3). All oral dosing will be administered as described in section 15.17. Dose selection will depend on the results of the SADM done in the acute toxicity tests (*i.e.*, a proportion of the LD50).

Animals will be weighed on day minus (-) 1 to allow for randomized dose group assignments, day 0 (starting weight; first dosing day), plus (+) 3, +7, +14, +21, and +27 (final weight before prefasting; last dosing day) and +28 (terminal weight). Assignment to groups is based on stratification by weight. Briefly, same-sex pair-housed animals of each sex will be organized by increasing weight at day -1, and the cages with the six smallest weights will be randomized into 1 of the 6 groups. This will be repeated until all animals have been assigned. Weight distributions will then be compared by Analysis of Variance (ANOVA) to ensure that no statistically significant differences in body weight exist prior to dosing. If body weight of dosed animals is observed to decrease relative to controls, measurements may be done more frequently. Animals that exhibit an excessive decrease (*i.e.*, 20%) in weight (due to either weight loss or failure to gain weight compared to controls) will be evaluated further by the PI and Attending Veterinarian (AV) (or designee) for possible early removal from the study, per section 16.2.

Study personnel will monitor food consumption by weighing the container plus food on day 0, 7, 14, 21, and 28. On day 7 (or earlier if food containers are approaching empty), the container will be weighed, resupplied with food, and a second weight will be recorded. If body weight is observed to decrease, measurements may be done more frequently.

On day 28, males from the three highest dose groups with no mortalities will be biosampled via submandibular or saphenous venipuncture as described in sections 15.9 and 15.17. Immediately thereafter, surviving animals on the sub-acute test will be rendered unconscious with CO2 gas (11.5) and euthanized (17.1). Trunk blood will be collected and animals will undergo necropsy.

Animals will be prefasted (5-6 hours) prior to necropsy. Prefasting of the animals is widely accepted to be scientifically necessary to meaningfully interpret blood glucose and lipid panels (Chang 2020, Jensen *et al.*, 2013). Tissues will be collected per section 15.18.

Clinical chemistry, hematology, and hemostasis analyses will be conducted at the end of the test if trunk blood sample volumes are adequate, according to TOX SOP 011 Clinical Chemistry Analysis of Blood Specimens (APHC, 2015), TOX SOP 013 Cell-Dyn 3700 Hematology Analyzer (APHC, 2018), and TOX SOP 079 Prothrombin Time and Activated Partial Thromboplastin Time (APHC, 2016). Samples for clinical chemistry will be collected in tubes, and evaluated for: ALB, ALKP, ALT, AST, BUN, CA, CHOL, CREA, GLU, PHOS, TP, TRIG, and electrolytes. Hematology samples will be collected in EDTA tubes and evaluated for total red blood cell and white blood cell counts, packed cell volume, hemoglobin, and five-part leukocyte differential.

Whenever possible, blood and tissues will also be collected from moribund animals at the time of euthanasia. If the pathologist and/or other qualified personnel are unavailable at the time of euthanasia, animals may be bled and euthanized (section 17.1). Euthanized animals will be placed in the refrigerator

until gross necropsy. Animals will be necropsied, and the decision of whether or not to collect tissues for pathological analysis will be at the discretion of the pathologist after assessing the level of tissue autolysis. Animals that are found dead will be refrigerated until necropsy. Blood will not be collected from these animals, and tissue collection will be at the discretion of the pathologist.

Micronucleus assay (MNA):

The determination of whether a compound is mutagenic/carcinogenic requires multiple different *in vivo* and *in vitro* assays. The micronucleus assay (MNA) offers a means to screen in an *in vivo* system that will add to the overall weight of evidence, and slight sex differences are unlikely to be meaningful in this larger context. Mutagenic compounds typically show positive results in both sexes, although some evidence suggests that the sensitivity of this response may be slightly higher in males. Thus, if one sex is to be performed, males are generally the preferred sex. A study by the Collaborative Study Group for the Micronucleus Test demonstrated that among 20 mutagenic compounds tested, all compounds induced micronuclei in both sexes, and 15 of 20 showed sensitivities that were comparable between sexes. Among the remaining 5 compounds, 4 showed higher sensitivity in males (1986). Each 28-day test with two formulations will include an additional 6 male mice to serve as shared positive and negative controls for a micronucleus assay (MNA, **see Table 2, displayed as 3/formulation** for clarity). MNA control animals will NOT be administered any of the formulations.

The positive and negative micronucleus control animals will be subdivided into groups and scheduled for dosing so that their necropsy dates coincide with the subacute test necropsy dates. MNA control animals will be biosampled on day 21 of the subacute toxicity test via submandibular or saphenous venipuncture as described in sections 15.9 and 15.17. These biosamples will serve as negative control samples. Then, MNA animals will be dosed via oral gavage for 3 days (*i.e.*, days 25-27 of the test) with a genotoxic agent (*e.g.*, 200 mg/kg ethyl methanesulfonic acid (EMS) in an appropriate vehicle) per 15.17.

On day 28, MNA controls will be biosampled via submandibular or saphenous venipuncture as described in sections 15.9 and 15.17. These biosamples will serve as positive control samples. Immediately thereafter, animals will be rendered unconscious with CO2 gas (11.5) and euthanized (17.1).

Do you wish to add a supporting image?

- ☒ Yes
☐ No

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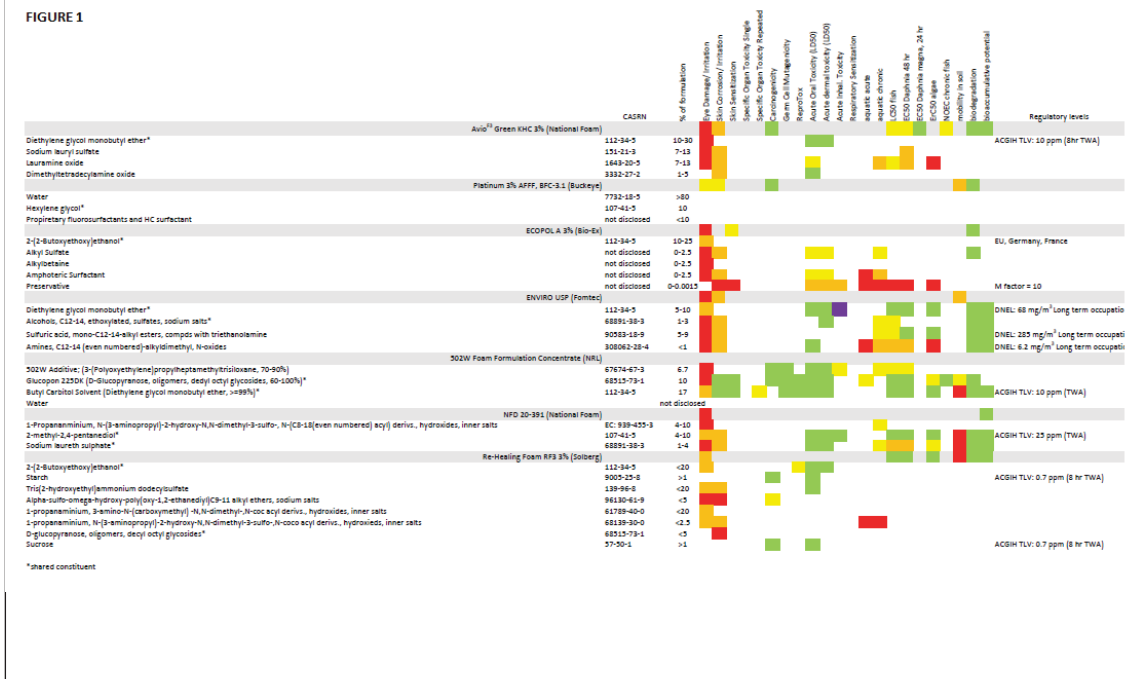
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FIGURE 1

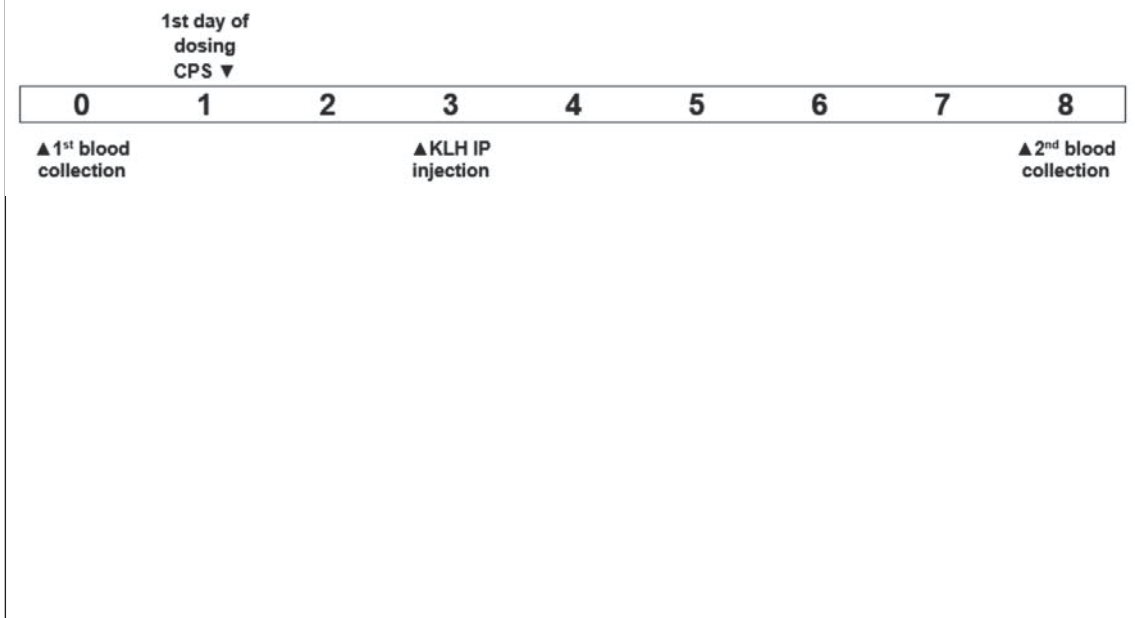


Caption Figure Depicting Toxicity Information on Individual Constituents of AFFFs

TABLE 1: Number of Animals (and Pain Categories) for Acute Toxicity Tests with 7 Formulations of Film-Forming Foams							
	Buckeye Platinum Plus C6 MILSPEC 3%	National Foam AVIO F3 Green PHC 3%	Bio-Ex ECOPOLA 3% FFF	Fomtec ENVIRO 2-3% FFF	Solberg Re-healing Foam	National Foam NFD 20-391	NRL 502W Siloxane-based Formulation
Limit test¹: 5/sex @ 2000	5M, 5F (E=10)	5M, 5F (E=10)	5M, 5F (E=10)	5M, 5F (E=10)	5M, 5F (E=10)	5M, 5F (E=10)	5M, 5F (E=10)
Stage 1¹: 2/sex/dose	10-12M, 10-12F (C=4, E=16-20)	10-12M, 10-12F (C=4, E=16-20)	10-12M, 10-12F (C=4, E=16-20)	10-12M, 10-12F (C=4, E=16-20)	10-12M, 10-12F (C=4, E=16-20)	10-12M, 10-12F (C=4, E=16-20)	10-12M, 10-12F (C=4, E=16-20)
Stage 2²: 3/sex/dose	12M, 12F (E=24)	12M, 12F (E=24)	12M, 12F (E=24)	12M, 12F (E=24)	12M, 12F (E=24)	12M, 12F (E=24)	12M, 12F (E=24)
Stage 3²: 3/sex/dose	12M, 12F (E=24)	12M, 12F (E=24)	12M, 12F (E=24)	12M, 12F (E=24)	12M, 12F (E=24)	12M, 12F (E=24)	12M, 12F (E=24)
TOTAL	39M, 39F (C=4, E=68-74)	36M, 36F (C=4, E=68-74)	36M, 36F (C=4, E=68-74)	36M, 36F (C=4, E=68-74)	36M, 36F (C=4, E=68-74)	36M, 36F (C=4, E=68-74)	36M, 36F (C=4, E=68-74)
¹ If a formulation is expected to be relatively non-toxic, a limit test may be conducted. - In the limit test, five animals are sequentially dosed at 2000 mg/kg. - If three or more animals die in the limit test, stage 1 of the stagewise adaptive dose method (SADM) will commence; however, the sixth dose (<i>i.e.</i>, 2000 mg/kg) will be dropped and 10M and 10F will be used in stage 1 (C=4, E=16). ² If a formulation is expected to be somewhat toxic OR if toxicity cannot be predicted, the limit test will not be conducted. - Instead, the SADM will be performed.							
* If Stages 2 and/or 3 are unnecessary, based on the results of the Limit test or Stage 1, 128 excess animals may be used for a pilot test to optimize antibody response, as a form of reduction							

Caption Number of Animals (and Pain Categories) for Acute Toxicity Tests

FIGURE 2. Schematic of T-cell Dependent Antibody Response Experimental Design



Caption Figure Depicting Experimental Design of Pilot Test

TABLE 2. Number of Animals (Pain Categories) for Pilot Test to Optimize Antibody Response					
		cyclophosphamide (CPS)			
		0 mg/kg-day	30 mg/kg-day	60 mg/kg-day	100 mg/kg-day
keyhole limpet hemocyanin (KLH)	0 mg/kg	8 (C=8)	8 (C=8)	8 (C=8)	8 (C=8)
	1 mg/kg	8 (C=8)	8 (C=8)	8 (C=8)	8 (C=8)
	2 mg/kg	8 (C=8)	8 (C=8)	8 (C=8)	8 (C=8)
	5 mg/kg	8 (C=8)	8 (C=8)	8 (C=8)	8 (C=8)
TOTAL		32 (C=32)	32 (C=32)	32 (C=32)	32 (C=32)

Caption Number of Animals (and Pain Categories) for Pilot Test

TABLE 3: Number of Animals (Pain categories) for Subacute Toxicity Tests with 7 Formulations of Film-Forming Foams							
	Buckeye Platinum Plus C6 MILSPEC 3%	National Foam AVIO F3 Green PHC 3%	Bio-Ex ECOPOLA 3% FFF	Fomtec ENVIRO 2-3% FFF	Solberg Re-healing Foam	National Foam NFD 20-391	NRL 502W Siloxane-based Formulation
Vehicle control	10M, 10F (C=20)	10M, 10F (C=20)	10M, 10F (C=20)	10M, 10F (C=20)	10M, 10F (C=20)	10M, 10F (C=20)	10M, 10F (C=20)
Dose 1	10M, 10F (D=20)	10M, 10F (D=20)	10M, 10F (D=20)	10M, 10F (D=20)	10M, 10F (D=20)	10M, 10F (D=20)	10M, 10F (D=20)
Dose 2	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)
Dose 3	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)
Dose 4	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)
Dose 5	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)	10M, 10F (E=20)
Micronucleus +/- control	3M (E=3)	3M (E=3)	3M (E=3)	3M (E=3)	3M (E=3)	3M (E=3)	3M (E=3)
TOTAL	63M, 60F (C=20, D=20, E=83)	63M, 60F (C=20, D=20, E=83)	63M, 60F (C=20, D=20, E=83)	63M, 60F (C=20, D=20, E=83)	63M, 60F (C=20, D=20, E=83)	63M, 60F (C=20, D=20, E=83)	63M, 60F (C=20, D=20, E=83)

Caption Number of Animals (and Pain Categories) for Subacute Toxicity Tests

Add another Image



9.2 List potential adverse sequelae that could occur during the natural course of the proposed animal experiments:

1) The toxicity of the seven formulations of interest is unknown and if toxic, the mechanism of toxicity is unknown. As such, some animals may die or become moribund. Morbidity will be determined using a scoresheet, which may be adjusted as necessary in consultation with the AV (see attachment). The time at which toxicity signs appear, their duration, and the time to death are important, especially if there is a tendency for deaths or morbidity to be delayed. At the end of the observation or dosing period, all surviving animals will be euthanized (section 17.1) and necropsied.

2) Aggressive behavior between animals may result in injury or death. Animals will be observed closely and a reasonable effort will be made to socially house all animals, but some animals may need to be singly housed for animal welfare.

9.3 Data Analysis:

Describe the statistical test(s) or strategy intended to evaluate the data. Include the statistical methodology used to determine group size and total number of animals. A power-based assessment of the sample size is the preferable method of determining the minimum number to yield significant results. Be certain to include animals necessary for controls or technique development.

GROUP SIZES:

1) Acute toxicity tests:

The use of up to 78 animals per formulation in the determination of LD50 is IAW OPPTS 870.1100 and ASTM Guideline 1163-10. While other acute test methods can be used that further reduce the number of

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animals (i.e., OECD Test Guideline 423), these methods provide only rough estimates of the LD50 that do not allow meaningful comparisons with other compounds. A goal of these tests is to compare the toxicity of new and legacy formulations. Thus, an accurate LD50, including slope and confidence intervals, is required to make these comparisons.

2) Subacute toxicity tests:

USEPA guidelines recommend a minimum of 10 animals per group (5 males and 5 females) for subacute tests (USEPA, 2000).

DATA ANALYSIS:

Data will be reported individually and summarized in tabular form. Statistical significance is defined as a $p \leq 0.05$. Male and female data may be analyzed separately. Continuous response data will be analyzed using a one-way ANOVA with dose group as the categorical main effect. Appropriate organ weights will be analyzed by Analysis of Covariance (ANCOVA) using final body weight or brain weight as the covariate (Bailey, 2004). Weekly body weight may be analyzed using repeated measures ANOVA to determine dose effect. When statistically significant main effects are observed, 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 or Dunnett's T3 test if the variances are unequal. Heteroscedasticity (unequal variance) will be determined by Levene's or Bartlett test. Normality will be determined via Shapiro-Wilk or Kolmogorov Smirnov test. If the data are not normally distributed, the data may be transformed appropriately prior to downstream analysis or analyzed using a nonparametric test (e.g., Kruskal-Wallis nonparametric ANOVA). Nonparametric analysis will be the method of last resort since it tends to have less power to detect a difference.

Appropriate statistical tests (e.g., Chi-square, Fisher's exact, and regression analysis) will be used to determine significant differences for nominal or count data, per the PI's discretion. When possible, appropriate statistical analysis, such as Chi-square analysis, will be applied to gross pathology and histology results.

9.4 Laboratory Animals Required and Justification:

Animal (In Vivo) Justification:

Provide a rationale for the use of animals.

The objectives of this study are to assess the possible health effects of seven film-forming foams. There are no appropriate animal substitutes (e.g., computer models, tissue/cell cultures) for the data that will be produced in this study. There are no non-animal alternative methods that would provide the necessary toxicological information provided by this study. Therefore, it is necessary to perform this study in an animal model.

9.5 Animal Model and Species Justification:

Provide scientific justification for choice of animal model. Describe which physiological and morphological characteristics this animal possesses that make it the best possible model.

This study will use the CD-1 outbred mouse strain (CrI:CD1(ICR); *Mus musculus*). CD-1 mice colonies are outbred to manage random genetic drift and minimize genetic bottlenecking due to inbreeding. This results in higher genetic heterozygosity that mimics a more wild-type-like genotype than other inbred strains of mouse. CD-1 mice are widely used in toxicity studies (Charles River, 2018), including by the USEPA Office of Pesticide Programs for chronic long term toxicity studies (OECD, 2012).

9.6 Source/Vendor:

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Are all suppliers USDA-approved or are animals obtained from within the facility?

- ☒ Yes
☐ No

9.7 Does this protocol involve Field Studies or Field Research?

- ☐ Yes
☒ No

10.0 Refinement, Reduction, Replacement (3Rs)

10.1 Refinement, Reduction, Replacement (3Rs):

Investigators are required to consider the 3 Rs when preparing an animal use research protocol. In the section below, describe all provisions in this protocol that refine, reduce, or replace the use of animals. Discuss what provisions were considered and why they were not chosen. You must address each section below.

Refinement:

Refinement refers to modifications of husbandry or experimental procedures to enhance animal well-being and minimize or eliminate pain and distress.

- 1) A reasonable attempt will be made to socially house all animals. In instances of incompatibility and/or aggression between cage mates that cannot be remedied, animals may be separated and housed individually.
- 2) All animals will be provided with a plastic-free form of enrichment (e.g., Nestlet) in their cage/pen. Individually housed animals may be provided with extra enrichment if it is plastic-free.
- 3) Animals will be considered for early removal from the study based on clinical signs of morbidity.

Reduction:

Reduction involves strategies for obtaining comparable levels of information from the use of fewer animals or for maximizing the information obtained from a given number of animals(without increasing pain or distress) so that in the long run fewer animals are needed to acquire the same scientific information. This approach relies on an analysis of experimental design, applications of newer technologies, the use of appropriate statistical methods, and control of environmentally related variability in animal housing and study areas.

In all 14 tests, allowing tissue sharing may reduce the need for other animal studies to collect additional tissues.

Acute toxicity tests:

- 1) If a formulation is expected to be relatively non-toxic, based on *in vitro* toxicity tests and/or modeling the constituents of the formulation, a limit test may be conducted. Per OPPTS 870.1100 "the limit test can be used efficiently to identify chemicals that are likely to have low acute toxicity." By doing so, dosing animals at 1/3 log intervals of 2000 mg/kg (e.g., 93, 200, 431, and 928 mg/kg), per OPPTS 870.1100 and ASTM 2011, may be unnecessary, which is a reduction in overall animal use. Specifically, the limit test uses 5 animals/sex whereas stage 1 of the SADM uses 12 animals/sex.

2) Depending on how the tests progress, excess animals could be (i) used to pilot an immune assay, (ii) transferred to another approved protocol, (iii) used for testing with a different formulation, or (iv) humanely euthanized per QSARC 800 (APHC, 2017a). A caveat to this third option is that testing with each formulation *must* be completed with the same shipment of animals.

Subacute toxicity tests:

1) Incorporating the micronucleus genotoxicity test with the subacute toxicity tests reduces the need for initiating a separate genotoxicity test.

2) The micronucleus positive controls will serve as their own negative controls through early sampling prior to dosing. This reduces the necessary number of animals by half, and provides a better control for the test itself.

3) Furthermore, by conducting subacute toxicity tests with two formulations at a time, only one shared positive and negative micronucleus control group will be utilized. Additionally, depending on chemical/physical properties, a shared vehicle control may also be feasible.

Replacement:

Replacement refers to methods that avoid using animals. The term includes absolute replacements (i.e., replacing animals with inanimate systems such as computer programs) as well as relative replacements (i.e., replacing animals such as vertebrates with animals that are lower on the phylogenetic scale).

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.

11.0 Procedures with Potential to Cause Pain or Distress

11.1 Which of the following Categories apply to procedures in this Protocol?

Check if used	USDA category	Category Description
☐	Category B	Number of animals being bred, conditioned, or held for use in teaching, testing, experiments, research, or surgery but not yet used for such purposes
☒	Category C	Number of animals upon which teaching, research, experiments, or tests are conducted involving no pain, distress, or use of pain-relieving drugs.
☒	Category D	Number of animals upon which experiments, teaching, research, surgery, or tests are conducted involving accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic, or tranquilizing drugs were used.
☒	Category E	Number of animals upon which experiments, teaching, research, surgery, or tests are conducted involving accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic, or tranquilizing drugs would have adversely affected the procedures, results, or interpretation of the teaching, research, experiments, surgery, or tests.

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11.2 List all procedures that are anticipated to cause more than slight or momentary pain or distress (Category D or E) in animals assigned to this protocol.

Oral dosing of toxic substances may cause more than slight or momentary pain or distress. The observation of the onset, duration, and/or reversibility of toxic signs in the acute and subacute toxicity tests is critical to mechanistic interpretation. Toxic signs most frequently seen are as follows: increased or decreased respiratory rate, hypoactivity, prostration, ataxia, unkempt appearance, body tremors, blanching, gasping, diarrhea, lethargy, chromodacryorrhea, red excretion around nares, and orbital tightening.

11.3 Literature Search for Alternatives to Procedures with Potential to Cause Pain or Distress:

* Add a new row for each source necessary.

	Source Searched	Date of Search	Dates covered by Search	Search Strategy for Keywords	Results of Search
☐	ALTBIB (PubMed)	13 August 2020	all years covered by database	LD50 or median lethal dose AND pain or distress or alternatives + Citations with Animal Use Alternatives as the main topic + Citations from the PubMed Toxicology Subset	3023 results were found, but most were not applicable. One paper suggested the animal cell-based 3T3 Neutral Red Uptake (NRU) assay as an alternative to acute toxicity testing of cosmetic ingredients. As such, no acceptable alternatives to performing an LD50 test were found.
☐					
☐	ALTBIB (PubMed)	13 August 2020	all years covered by database	mouse or rat AND decapitation AND exsanguination AND pain or distress or alternatives	The same 3023 results from the previous search were found. No acceptable alternatives to decapitation and exsanguination were found that would provide sufficient blood volume to satisfy the study endpoints. Anesthesia will be administered prior to decapitation and exsanguination.
☐					
☐	Agricola	13 August 2020	all years covered by database	LD50 or median lethal dose AND pain distress alternative (any of these)	14 results were found, none of which provided acceptable alternatives.
☐					
☐	Agricola	13 August 2020	all years covered by database	decapitation or exsanguination AND pain distress alternative (any of these)	4 results were found, 2 of which were written in German and 2 of which were specific to chicken embryos. As such, no alternatives were found that would provide sufficient blood volume to satisfy the study endpoints. Anesthesia will be administered prior to decapitation and exsanguination.
☐					

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11.4 Unalleviated Painful/Distressful Procedure (Category E) Justification:

Procedures that have the potential to cause more than slight or momentary pain or distress and for which the use of appropriate anesthetic, analgesic, or tranquilizing drugs would adversely affect the study must be justified on a scientific basis in writing by the P.I. This paragraph must be completed if there are ANY animals in this protocol that will experience unalleviated pain or distress.

The nature of the orally exposing animals to toxic substances precludes the use of totally painless procedures. Furthermore, the toxicity of the seven formulations of interest is unknown and if toxic, the mechanism of toxicity is unknown. An attempt to alleviate pain or distress by the administration of anesthetics, analgesics, or other drugs may alter the manifestation of the toxic responses and/or interfere with the mechanism of toxicity, (e.g., NSAIDs might mask a compound's toxicity resulting from the induction of systemic inflammation) (Moore and Desantis, 2008). In addition, morphine and other opioids have been reported to produce a number of immunomodulatory effects in both laboratory animals and humans. Morphine also suppresses T- and B-cells, depresses natural killer cell activity, and decreases primary antibody responses in mice (Beilin *et al.*, 1992; Piersma *et al.*, 1999). Animals have been shown to be more susceptible to disease if opioids are used short term or in a single dose (Rouveix, 1992). *In vitro* exposure of murine lymphocytes and macrophages to morphine and its metabolites at a wide range of concentrations resulted in suppressed B-cell proliferation, suppression of interleukin 2, 4, and 6, and inhibited cytotoxic T- lymphocyte induction (Thomas *et al.*, 1995). Additionally, both fentanyl and buprenorphine (opioid analgesics) have shown a dose-dependent attenuation of the serum TNF- α response in mice as a result of exposure to LPS (Piersma *et al.*, 1999). Previous studies indicate that opioid analgesics, including butorphanol, an opioid commonly used for pain alleviation in laboratory animals, cause substantial respiratory depression in nonhuman primates (Butelman *et al.*, 1995; Gerak *et al.*, 1994). Narcotic analgesics can cause histamine release and respiratory depression which could alter the pathogenic and clinical response to immune mediated inflammation (Soma, 1983). The cyclooxygenase inhibiting NSAIDs have been shown to produce progressive alterations of parameters of the thrombocyte vessel system of hemostasis, decreased ability of thrombocytes to aggregate, and activation of lipid peroxidation processes in rabbits injected with bacterial endotoxin (Malov *et al.*, 1991). Steroidal and nonsteroidal anti-inflammatory drugs are also contraindicated due to their interference with the inflammatory response, a potentially integral part of the host response during the disease process. The observation of the onset, duration, and/or reversibility of toxic signs is critical to mechanistic interpretation. Toxic signs most frequently seen are as follows: increased or decreased respiratory rate, hypoactivity, prostration, ataxia, unkempt appearance, body tremors, blanching, gasping, diarrhea, lethargy, chromodacryorrhea, red excretion around nares, and orbital tightening.

11.5 Pain/Distress Relief or Prevention

Describe the methods or strategies intended to relieve or prevent pain or distress if the study will cause more than slight or momentary pain or distress. Specify agents to be used and when these agents will be given (pre-emptive or postprocedural). Include all agents that will be used for for chemical restraint.

Analgesic	
Species	N/A
Strain, if applicable	N/A

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Analgesic drug	N/A
Route	N/A
Dose	N/A
Volume	N/A
Frequency	N/A
Duration	N/A
Monitoring	N/A
Reason for administration	N/A

Add another Analgesic drug:

+

-

Use space below for additional comments or descriptions of **analgesics**, such as drug formulation, if required.

N/A

Anesthetic/Sedative/Tranquilizer	
Species	CD-1 mice
Strain, if applicable	CrI:CD1(ICR)
Anesthetic drug	carbon dioxide (CO2)
Route	inhalation
Dose	N/A
Volume	30-70% of the chamber volume will be replaced per minute
Frequency	Once
Duration	under rendered deeply unconscious
Monitoring	constant visual monitoring until non-response to a strong toe-pinch and palpebral stimulation
Reason for administration	to render deeply unconscious prior to euthanasia and trunk blood collection via decapitation and exsanguination

Add another Anesthetic drug:

+

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Use space below for additional comments or descriptions of **anesthetics**, such as drug formulation, if required.

Animals will be brought to the necropsy room in their home cage or a clean 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, magnet, or stopper. CO2 will displace 30-70% of the chamber volume per minute in accordance with QSARC 800 (APHC, 2017a) and 2020 AVMA guidelines. Animals will remain in the cage until they are recumbent and breathing is slow and shallow. Once recumbent, a toe or space between the toes will be pinched to assess appropriate depth of anesthesia. If there is no response to toe pinch, the animal will be removed.

11.6 Other Methods to Prevent or Alleviate Pain/Distress:

Examples include acupuncture, hydrotherapy, hot/cold packs, and removal from environment to prevent or alleviate distress:

N/A

Will a Pain and Distress Scoresheet be used as part of this project?

- ☒ Yes
☐ No

12.0 Paralytics

12.1 Will the project employ the use of neuromuscular blockades or paralytics?

- ☐ Yes
☒ No

13.0 Restraint Devices

13.1 Will the project employ the use of restraint devices?

- ☐ Yes
☒ No

14.0 Surgery

14.1 Will the project involve Surgery?

- ☐ Yes

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☒ No

15.0 Animal Manipulations

15.1 Injections

Injection	
Species	CD-1 mice
Substance	keyhole limpet hemacyanin (KLH)
Route	IP
Dose	1-5 mg/kg
Volume	not to exceed 10 ml/kg
Frequency	once, approximately 5 days prior to euthanasia
Expected effect	incite immune response in ex vivo assay
Possible side effect	none

Add another Injected Substance:

+

-

15.2 Are any non-pharmaceutical grade compounds used in this protocol?

☒ Yes

☐ No

Provide scientific justification, including availability of human or animal formulations, and describe clinical use of all non-pharmaceutical grade formulations. Consider grade, purity, sterility, pH, pyrogenicity, osmolality, stability, site and route of administration, formulation, compatibility, and pharmacokinetics of the chemical or substance to be administered, as well as animal welfare and scientific issues relating to its use.

Appropriate solvents (*i.e.*, Tween, methanol, ethanol, etc) are available in pharmaceutical grade. Corn oil is not available in pharmaceutical grade composition; however, it is available in food grade. Its use in this protocol is for oral dosing and ingestion, therefore, food grade corn oil is appropriate for this protocol.

Keyhole limpet hemacyanin (KLH) is a research reagent and is unavailable in pharmaceutical grade.

Cyclophosphamide (CPS) is an immunosuppressant drug; therefore, it is available in pharmaceutical grade.

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The formulations being tested and administered orally are not available in pharmaceutical grade composition. The manufacturers may provide a statement of purity and stability, which may be verified by Army Public Health Center Laboratory Sciences if the techniques are developed and validated.

15.3 Are you using adjuvants?

- ☐ Yes
☒ No

15.6 Will antibody production be performed?

- ☐ Yes
☒ No

15.9 Will you collect samples from living animals?

- ☒ Yes
☐ No

Biosample	
Species	CD-1
Strain	Mus musculus
Biosample	blood
Sampling site	saphenous and/or submandibular
Volume taken	60-120 uL
Frequency of sampling	(PILOT TEST, 128 animals) One collection, prior to 7-day consecutive doses of the immunosuppressant cyclophosphamide.
Method of sampling	venipuncture

Biosample	
Species	CD-1
Strain	Mus musculus
Biosample	blood
Sampling site	saphenous and/or submandibular

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Volume taken	60-120 uL
Frequency of sampling	(MNA positive and negative controls, 21 animals). Two samples collected, 7 days apart. Sampling is scheduled to correspond with the end of the 28-day study.
Method of sampling	venipuncture
Biosample	
Species	CD-1
Strain	Mus musculus
Biosample	blood
Sampling site	saphenous and/or submandibular
Volume taken	60-120 uL
Frequency of sampling	(SUBACUTE TOXICITY TESTS, MALES from the 3 highest dose groups without mortality, up to 210 animals). One sample collected immediately prior to euthanasia.
Method of sampling	venipuncture

Add another Biosample:

+

-

15.10 Provide justification for any collection volumes in excess of IACUC policy:

N/A

15.11 Will the project employ the use of genotyping?

- ☐ Yes
- ☒ No

15.12 Will the project employ the use of breeding?

- ☐ Yes
- ☒ No

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15.13 Will the project employ the use of behavioral testing?

- ☐ Yes
☒ No

15.17 Will the project employ other procedures not yet described in this protocol?

- ☒ Yes
☐ No

Describe other procedures:

Oral gavage:

Animals will be gently restrained or "scruffed" by pinching the skin at the base of the neck, behind the ears, between the thumb and fingers. Oral gavage will be performed with an appropriately sized oral gavage needle or feeding tube for the species (**e.g., 18-22 gauge needle, 1-2 inches**). To determine the appropriate size of gavage needle, measure the length of the needle to reach the last rib of the animal (e.g., as a landmark for the stomach) and mark this location on the needle (so that the person gavaging the animal knows when to stop advancing the needle). If any resistance is felt during the gavage procedure, the gavage needle will be removed and the animal will be briefly released before the procedure is attempted again. Once the gavage needle is inserted into the stomach, the compound is gently administered and when administration is complete, the needle is slowly removed. The maximum dose volume given in a single dose will not exceed **10 ml/kg of body weight**. Once the material has been dispensed, the animal is briefly observed for any signs of aspiration. When dosing is complete, study personnel will observe each animal for any signs of aspiration. Study personnel will use a similar procedure to observe animals at least 1 hour after the last animal is dosed for signs of distress (e.g., labored breathing, wheezing, gasping, dullness, changes in gait, etc.) on weekdays. On weekends and holidays, post-procedural observations may be conducted by Animal Health Technicians, if deemed appropriate by the PI and AV.

Saphenous venipuncture:

Animals will be physically restrained just long enough to complete the procedure. To secure the limb and elevate the vein, the skin on the upper, inner thigh is gently but firmly squeezed. The leg should be in a natural, stretched out position. The area may be swabbed with alcohol to visualize the vein. Petroleum jelly or a similar lubricant may be placed over the saphenous area. Using a **sterile 25-26 gauge needle**, the saphenous vein will be punctured at a 90° angle at the most proximal visible site. Blood will be collected directly into a tube or via a pipette tip. Gauze and pressure will be applied for several seconds to ensure hemostasis. Once hemostasis is achieved, the animal will be returned to its home cage or a euthanasia chamber and visually inspected at the conclusion of the sampling event.

Submandibular venipuncture:

Animals will be physically restrained just long enough to complete the procedure in such a manner to maximize viewing of the face. Petroleum jelly or a similar lubricant may be placed over the submandibular area. Using a **sterile 22-25 gauge or smaller needle or a 5 mm or smaller lancet**, the submandibular area will be entered by advancing the needle or lancet perpendicular to the animal's face. Gauze and pressure will be applied for several seconds to ensure hemostasis. Once hemostasis is achieved, the animal will be returned to its home cage

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or a euthanasia chamber and visually inspected at the conclusion of the sampling event.

Intraperitoneal (IP) injections:

Animals will be held, angled head-down and ventral side superior (Trendelenburg position) to facilitate settling the abdominal organs away from the injection site, thereby reducing the likelihood the needle will perforate the intestines. The needle **(21-28 gauge, 1/2-1 inch)** will be inserted bevel side up at approximately a 30 degree angle (relative to the abdomen), in the lower left quadrant (avoiding the midline) at a depth suitable to ensure penetration of peritoneal cavity. The plunger will be drawn back to verify the needle is not in the intestine (aspirate luminal contents), blood vessels (aspirate blood), or bladder (aspirate urine). If no aspirate is observed, the solution will be injected into the peritoneal cavity rapidly.

15.18 Will post-mortem tissues be collected in support of study objectives?

☒ Yes

☐ No

List tissues collected:

This tissue list may be altered at the discretion of the Pathologist and PI based on observations at the time of necropsy.

Subacute toxicity tests:

Uterus (with oviducts and cervix, if possible)

Ovaries

Testes

Epididymides

Brain

Liver

Kidneys

Heart

Spleen

Thymus

Bone marrow

15.19 Will unused tissues from this protocol be shared with other investigators?

☒ Yes

☐ No

List what tissues will be shared, with whom, and for what purpose. Describe any pathogen testing that will be conducted.

Tissues from animals euthanized on this study may be made available to other personnel if coordinated through the PI. Tissue sharing will be allowed only if doing so does not affect the quality and validity of the study, or changes the euthanasia methods.

16.0 Study Endpoint

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16.1 Endpoint Criteria:

State the projected study endpoint for animals, including a plan for disposition of surviving animals:

The study endpoint is either death from exposure to the formulations, intervention euthanasia of moribund animals, or euthanasia at the end of the test (*i.e.*, no more than 14 days after study initiation for the acute and 28 days after study initiation for the subacute). Potentially moribund animals will be monitored, in consultation with the AV, during all test phases for possible reversal and recovery of toxic signs. Morbidity will be determined using a scoresheet, which may be adjusted as necessary in consultation with the AV (see attachment).

The endpoint for the positive and negative micronucleus control animals is euthanasia scheduled to coincide with the euthanasia days of the 28-day subacute study.

16.2 Early Endpoints:

Describe early endpoints for animals. Examples include weight loss, loss of locomotion, significant lowering of body temperature, decreased food or water consumption, and decreased activity. If weight loss is used as a criterion for early removal from the study, frequency of weighing must be described.

Potentially moribund animals will be monitored, in consultation with the AV, during all test phases for possible reversal and recovery of toxic signs. Morbidity will be determined using a scoresheet, which may be adjusted as necessary in consultation with the AV (see attachment).

If signs of toxicity develop, PIs will conduct animal observations twice a day.

Animals will be assessed for morbidity on a case-by-case basis and assessed for early euthanasia according to the following criteria:

1. Impaired ambulation (which prevents the animal from reaching food/water).
2. Weight loss or failure to gain weight. At 15% body mass loss as compared to controls, animals will be assessed for morbidity and recommended for increased monitoring.
3. Lack of physical activity or mental alertness.
4. Prolonged labored breathing (lasting longer than 8 hours and accompanied by lethargy).
5. Unabated seizure activity (lasting longer than 1 hour).
6. Inability to urinate or defecate longer than 24 hours.
7. Prolonged inability to remain upright (lasting more than 2 hours).

16.3 Will death be used as an endpoint for any animals on this protocol?

☒ Yes

☐ No

Provide scientific justification for death as an endpoint:

The study endpoint is either death from exposure to the formulations, intervention euthanasia of moribund animals, or euthanasia at the end of the test (*i.e.*, no more than 14 days after study initiation for the acute and 28 days after study initiation for the subacute). Although some form of euthanasia is the projected study endpoint, the possibility still exists that a compound-related death may occur during an unobserved period (*e.g.*, overnight). The novelty of the formulations being tested prevents the assurance that a compound-related death may not occur.

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Additionally, the time at which signs of toxicity appear, their duration, and the time to death are important, especially if there is a tendency for deaths or morbidity to be delayed or if the signs of toxicity are reversible or recovery is possible. This is particularly important in the acute study when the type, onset, and duration of toxic signs are still unknown. As such, potentially moribund animals will be monitored, in consultation with the AV, during all test phases for possible reversal and recovery of toxic signs.

17.0 Euthanasia

17.1 Will the project involve euthanasia of animals as part of the planned studies?

☒ Yes

☐ No

Euthanasia	
Species	CD-1 mice
Strain, if applicable	CrI:CD1(ICR)
Euthanasia method	Decapitation (QSARC 800 & QSARC 801)
Route	
Dose	
Volume	
Method of ensuring death	

Add another entry:

+

-

If applicable, for conditional methods of euthanasia, describe how those conditions will be met. For those methods NOT within the current AVMA guidelines, provide a description and scientific justification.

Decapitation is scientifically justified within this protocol because it will not contaminate blood or tissue samples. Given that the longer-duration tests are reproductive/developmental screenings, it is imperative to avoid the use of contaminating substances (*e.g.*, barbiturates or other chemical methods of euthanasia). Furthermore, the use of quick euthanasia methods (*e.g.*, decapitation) reduces production of cortisol, which can have inhibitory effects on the hypothalamus-pituitary axis and may impact analysis of circulating hormone levels.

Decapitation will be performed in accordance with AVMA guidelines. Animals will be

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rendered deeply unconscious with CO₂ (e.g., non-responsive to strong toe-pinch and to palpebral stimulation) prior to decapitation.

18.0 Animal Husbandry

18.1 Special Husbandry and Procedures:

Are special husbandry practices required which are outside institute standard practice?

Examples of special husbandry practices may include change from standard food or water, withholding food or water, change from standard bedding, change from standard cage change frequency, temporary withholding of enrichment, use of metabolic cages.

☒ Yes

☐ No

Describe special husbandry practices below:

Animals will be prefasted (3-4 hours) prior to dosing for the acute toxicity tests. Animals will be prefasted (5-6 hours) prior to necropsy for the subacute toxicity tests. Otherwise, animals will be given certified rodent feed *ad libitum*. Rodent feed will be a reproductive diet so that results from the studies described herein can be extrapolated to future combined repeated-dose toxicity studies and reproduction/developmental toxicity screening tests.

Enrichment will be provided, largely in accordance with QSARC 802 (APHC, 2017c). However, enrichment devices made from plastic or nylon (e.g., Nylabones, rodent retreats, rodent tubes) are unacceptable. Acceptable enrichment may include uncoated cardboard retreats and other PFAS-free materials as approved by the AV and PI.

18.2 Will animal studies take place outside the vivarium?

☐ Yes

☒ No

18.4 Will other than standard housing methods be required?

☐ Yes

☒ No

18.5 Will exceptions to or deviations from IACUC-approved environmental enrichment practices, including single housing, be required?

☒ Yes

☐ No

Describe enrichment strategy and provide scientific justification if environmental enrichment is not provided. Animal monitoring should include observations for abnormal behaviors (such as self-injurious behavior or stereotypies). Include expected duration of exceptions or deviations.

Enrichment will be provided, largely in accordance with QSARC 802 (APHC, 2017c). However,

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enrichment devices made from plastic or nylon (e.g., Nylabones, rodent retreats, rodent tubes) are unacceptable. Acceptable enrichment may include uncoated cardboard retreats and other non-plastic materials as approved by the AV and PI.

A reasonable attempt will be made to socially house all animals. In instances of incompatibility and/or aggression, between cage mates that cannot be remedied, animals may be separated and housed individually.

18.6 Do you need to house more than the allowable number of animals in a single enclosure?

- ☐ Yes
☒ No

19.0 Veterinary Medical Care

19.1 Describe any veterinary care that is NOT in accordance with the Institute's program of veterinary medical care.

N/A

20.0 Exceptions/Justifications

20.1 Check all applicable:

- ☐ Use of Paralytics
☐ Restraint Devices
☐ Prolonged Restraint (e.g.; >12 hrs in nonhuman primates)
☐ Multiple Survival Surgery
☐ Multiple Major Survival Surgery
☒ Use of Non-Pharmaceutical Grade Chemicals
☐ Use of Complete Freund's Adjuvant
☒ Death as an Endpoint
☒ Food/Water Restriction
☒ Restriction of Environmental Enrichment, including Single Housing
☐ Other (Describe and justify below)

Deviations/exceptions MUST be justified by the P.I. If not listed elsewhere, all items that require scientific justification must be listed here.

See section 15.2 on use of non-pharmaceutical grade chemicals.
See section 16.3 on use of death as an endpoint.
See section 18.1 on food restriction.
See section 18.5 on restriction of environmental enrichment, including single housing.

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21.0 Biohazard/Safety

21.1 Will biohazardous material be used as part of this protocol?

☐ Yes

☒ No

21.2 List other safety considerations specific to this protocol, such as waste anesthetic gases and/or equipment that poses a potential threat (e.g.; lasers, imaging).

Sharp shears will be used for decapitation. Dedicated shears will be labeled "Decap Scissors." Risks associated with decapitation procedure include exposure to extremely sharp cutting blades/edges. Appropriate PPE will be worn during this procedure and QSARC SOP 801 (APHC, 2017b) will be followed.

Other risks associated with this study include the potential exposure to test articles. Appropriate PPE and waste disposal will be observed for the duration of the study.

21.3 Other Considerations:

Describe any other considerations not addressed previously.

Risks associated with this study include bites/scratches/needle sticks, transmission or zoonotic diseases, and the development of animal allergies. Appropriate PPE and animal handling practices will be observed for the duration of the study.

22.0 Attachments

22.1 Would you like to add attachments to this document?

Examples of attachments include pain and distress score sheets, flow charts, wildlife permits, or other documents associated with this protocol.

☒ Yes

☐ No

22.2 If yes, Please attach files.

Attach Files

23.0 Assurances

For IACUC use only

DOD E-IACUC protocol format
Version 2.0, 10/2017

IACUC number 26-20-11-01

IACUC approval date 10 Nov 2020

IACUC expiration date 10 Nov 2023

The law specifically requires several written assurances from the P.I. It states that "research facilities will be held responsible if it is subsequently determined that an experiment is unnecessarily duplicative, and that a good faith review of available sources would have indicated as much." No response is required under the title paragraph of this section.

As the 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.

B. Duplication of Effort: I have made a reasonable, good faith 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 statistician to evaluate the statistical design or strategy of this proposal, and that the minimum number of animals needed for scientific validity are 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, etc., in the preparation of this protocol.

E. Training: I verify that the personnel performing the animal procedures/manipulations 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 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" which the DoD has embraced, namely, "Responsibility" 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.

Principal Investigator signature

NARIZZANO.ALLISON.MARIE.1367161236

Digitally signed by NARIZZANO.ALLISON.MARIE.1367161236
Date: 2020.11.12 11:51:13 -05'00'

Date Nov 12, 2020

Painful Procedures:

I am conducting biomedical experiments which may potentially cause more than momentary or slight pain or distress to animals that WILL and WILL NOT be relieved with the use of anesthetics, analgesics, and/or tranquilizers. I have considered alternatives to such procedures; however, using the methods and sources described in the protocol, I have determined that alternative procedures are not available to accomplish the objectives of this proposed experiment.

Principal Investigator signature

NARIZZANO.ALLISON.MARIE.1367161236

Digitally signed by NARIZZANO.ALLISON.MARIE.1367161236
Date: 2020.11.12 11:57:00 -05'00'

For IACUC use only

IACUC number 26-20-11-01

DOD E-IACUC protocol format
Version 2.0, 10/2017

IACUC approval date 10 Nov 2020

IACUC expiration date 10 Nov 2023

TABLE 1: Number of Animals (and Pain Categories) for Acute Toxicity Tests with 7 Formulations of Film-Forming Foams

[illegible]

[†] If a formulation is expected to be relatively non-toxic, a limit test may be conducted.

- In the limit test, five animals are sequentially dosed at 2000 mg/kg.
- If three or more animals die in the limit test, stage 1 of the stagewise adaptive dose method (SADM) will commence; however, the sixth dose (*i.e.*, 2000 mg/kg) will be dropped and 10M and 10F will be used in stage 1 (C=4, E=16).

[†] If a formulation is expected to be somewhat toxic OR if toxicity cannot be predicted, the limit test will not be conducted.

- Instead, the SADM will be performed.

* If sequential stages aren't needed, 128 excess animals may be used for a pilot test to optimize antibody response, as a form of reduction

FIGURE 2. Schematic of T-cell Dependent Antibody Response Experimental Design

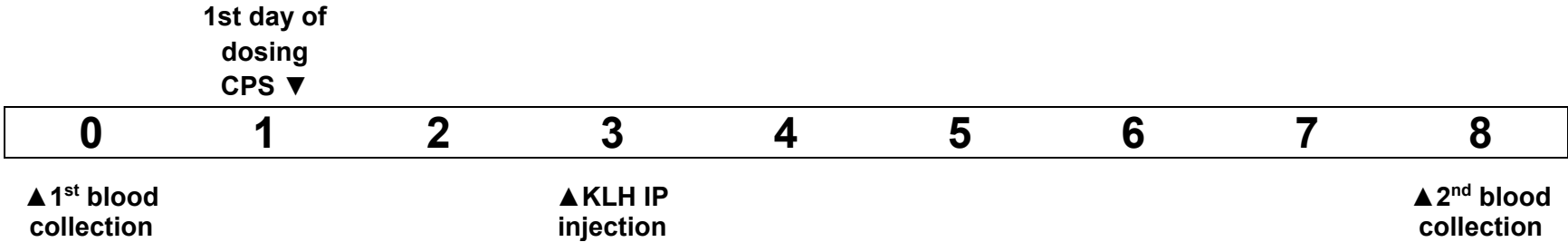


TABLE 2. Number of Animals (Pain Categories) for Pilot Test to Optimize Antibody Response					
		cyclophosphamide (CPS)			
		0 mg/kg-day	30 mg/kg-day	60 mg/kg-day	100 mg/kg-day
keyhole limpet hemocyanin (KLH)	0 mg/kg	8 (C=8)	8 (C=8)	8 (C=8)	8 (C=8)
	1 mg/kg	8 (C=8)	8 (C=8)	8 (C=8)	8 (C=8)
	2 mg/kg	8 (C=8)	8 (C=8)	8 (C=8)	8 (C=8)
	5 mg/kg	8 (C=8)	8 (C=8)	8 (C=8)	8 (C=8)
TOTAL		32 (C=32)	32 (C=32)	32 (C=32)	32 (C=32)

TABLE 3: Number of Animals (Pain categories) for Subacute Toxicity Tests with 7 Formulations of Film-Forming Foams

[illegible]

REFERENCES

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ANIMAL: _____

DATE OF DOSE: _____

DATE OF EUTHANASIA: _____

APPEARANCE:		1 hr	3 hr	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
3	shiny, well-kept coat; long, twitching vibrissae; bright, clear eyes; erect ears; pink mucous membranes															
2	somewhat unkempt coat, dull OR soiled coat; sparsely clumped vibrissae															
1	unkempt coat, dull AND soiled coat; clumped vibrissae															
0	hunched posture; clumped, soiled, dull fur; dull or dry eyes and nose; tacky, pale mucous membranes															
NATURAL BEHAVIOR:																
3	ambulates easily about cage; take interest in environment; interacts with cagemates; looks up at observer															
2	less interested in environment; interacts less with cagemates; disregards observer															
1	less mobile; isolated from cagemates; does not readily move when cage is disturbed															
0	immobile OR hyper-reactive															
PROVOKED BEHAVIOR:																
3	readily walks or runs away OR turns to sniff observer															
2	reluctantly moves away with some difficulty OR hyperactive response															
1	moves slowly away after extended pause OR hyperactive response															
0	does not move OR reacts with an especially exaggerated, excitable response															
BIOENERGETICS:																

APHC IACUC Protocol Modification Review/Approval

Study Director/ Principal Investigator: Allison M. Narizzano

Phone No.: [REDACTED]

FAX No.: [REDACTED]

Email: [REDACTED]

PROTOCOL #: 26-20-11-01

Protocol Approval Date: 10 Novemeber 2020

PROTOCOL
TITLE:

Ecotoxicity of New Film-Forming Foams: Acute and subacute toxicity tests in Mus Musculus

Modification Request #: 1

Submission Date: Feb 4, 2021

Study Director/ Principal
Investigator Signature:

NARIZZANO.ALLISON.MARIE.1367161236

Digitally signed by NARIZZANO.ALLISON.MARIE.1367161236
Date: 2021.02.04 10:37:47 -05'00'

For review use only:

Review Process: ADMIN ☒

FCR ☐

DMR ☐

Received Date: 04-Feb-2021

AURO receipt:

SEYFERT.ALLISON.MARIE.1473772210

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SEYFERT.ALLISON.MARIE.1473772210
Date: 2021.02.04 14:49:49 -05'00'

IACUC Designated Member Reviewer(s) (Sign when review is completed. AV and IC doing DM review for minor modifications IAW IACUC LGD will just sign in lower section on their respective signature lines.):

Attending/ Alternate Veterinarian Review Signature:

Date

Safety Review Signature (if applicable):

Date

LTACO/GLP Review Signature (if applicable):

Date

IACUC Chair Review Signature:

04-Feb-2021

Date

NEWKIRK.KRISTIN.TORELL.1014786895

Digitally signed by NEWKIRK.KRISTIN.TORELL.1014786895
Date: 2021.02.04 15:54:45 -05'00'

Modification IACUC APPROVED ☒

GLP REVIEWED ☐

Date: 04-Feb-2021

APHC IACUC Animal Use Protocol Modification

Study Director/ Principal Investigator: **Allison M. Narizzano**

PROTOCOL #: **26-20-11-01**

Protocol Approval Date: 10 November 2020

PROTOCOL TITLE: **Ecotoxicity of New Film-Forming Foams: Acute and subacute toxicity tests in Mus Musculus**

Phone No.: [REDACTED] [REDACTED]
[REDACTED]

Modification Request #: 1

Submission Date: 4 February 2021

1. Brief non-technical synopsis of existing protocol or background information pertaining to the modification request.

This protocol tests the toxicity of seven separate aqueous film-forming foam (AFFF) formulations administered orally to mice. The ultimate goal of these tests is to compare the toxicity of new and legacy formulations.

This modification seeks to add new qualified personnel, Heidi Hoard-Fruchey.

2. Type(s) of Modification Requested: (check all that apply)

	Type Of Change (See LGD 010 for more details)	X
ADMINISTRATIVE – AURO/GLP REVIEW	Administrative Modifications	
	GLP Modifications	
	Addition or deletion of a qualified technician, co-investigator, or study staff	X
MINOR Modifications (examples)	Change in animal usage [e.g., vendor, sex, age, weight, strain, small increase in # of animals used (less than 10% of overall number of approved animals)]	
	Need to repeat an experiment without the addition of animals	
	Addition/change of sample collection times	
	Addition/change of sample collection volumes	
	Additional noninvasive sampling	
	Changes in acclimation or recovery period	
	Special housing request or change in husbandry procedures that do not deviate from the Guide	
	Changes in dosing procedures (e.g., dose, volume, or timing)	
	Other: _____	
MAJOR Modification	Change in SD/PI	
	Change in objectives of the study	
	Addition of a test article to be evaluated	

	Change that results in greater pain, distress, or degree of invasiveness (changes to pain categories D or E from C require a literature search for alternatives to be completed)	
	Addition of animals to pain Category E (literature search for alternatives required)	
	Addition of or change in Species	
	Addition of more than 10% of the total # of animals originally approved	
	Addition of blood sampling	
	Change in frequency of observations for morbidity	
	Change in study endpoint	
	Change in euthanasia method	
	Changes in feeding, housing, care, or use of animals that is not standard for the species or IAW <i>The Guide</i>	
	Changes from nonsurvival to survival surgery	
	Change that impacts personnel safety	
	Other change that relates to the specific experimental design and aims of the original protocol	
	Other: _____	

3. PREVIOUSLY APPROVED MODIFICATIONS: (*Hit 'Enter' after description of each modification to list all individually.*)

Mod #	Short Description of the Amendment(s) (Include pain category breakdown of animal usage if changes were made from the original protocol)	No. & Species of Animal Requested	Approval Date
N/A	N/A	N/A	N/A

4. CURRENT APPROVED ANIMAL USAGE ON PROTOCOL:

Species/Total: CD-1 mice/1,535 **B:** 0 **C:** 296 **D:** 140 **E:** 1099

5. FOR ITEMS A-H BELOW: Describe the requested changes to be implemented and the justification(s) for each. *Please include section numbers of protocol for reference.*

A. Administrative change: Editorial (typographical, grammar, contact info update, etc.), GLP compliance changes, or change in personnel (not change of study director/principal investigator):

Add new qualified personnel, Heidi Hoard-Fruchey, for handling and observations, oral gavage, CO2 anesthesia/euthanasia, cervical dislocation, and decapitation.

B. Specific changes or additions to the experimental design of the protocol (Section V.1. Experimental Design; EIRB Section 9.1 Experimental Design and General Procedures).

N/A

C. Change in sample size evaluation, data analysis plan, archiving of data, (Section V.2.; EIRB Section 9.3).

N/A

D. Change in the animals used, (Section V.3.; EIRB Sections 5.0, 9.4-9.6, 10.0). *(Include any changes in amount used, sex, age/weight, vendor/source, refinement, reduction, and replacement [3Rs]).*

N/A

E. Changes to technical methods (Section V.4.; EIRB Sections 11.0-17.0). *(Include changes in USDA pain category classifications [section V.4.1.1.1.1 thru V.4.1.1.1.4.], changes in anesthesia, analgesia, restraint, injections, identification, behavior studies, 'other procedures', study endpoint, euthanasia, etc. Include reference source for basis of dose/treatment change.)*

***** If the modification requested will be adding animals to COLUMN D or E and the protocol did not previously have animals in those categories, a LITERATURE SEARCH FOR ALTERNATIVES TO PAINFUL OR DISTRESSFUL PROCEDURES must be completed and submitted with this modification request.**

N/A

F. Changes to the Husbandry and Veterinary Care procedures (Section V.5.; EIRB Sections 18.0, 19.0). *(Changes in husbandry considerations, special provisions, exceptions to the Guide, AWAR, or IACUC Policy that have an impact on animal care and use; any changes to the veterinary medical care or environmental enrichment.)*

N/A

G. Changes to the personnel conducting this protocol (Section VI.; EIRB Section 3.0). *(Include record of completed training for any animal handling or use procedures assigned to new personnel. Signed assurance page(s) must be included with the modification if changing SD/PI, Primary Co-investigator, or adding a co-investigator.)*

New qualified personnel: Heidi Hoard-Fruchey

Activities to be performed on protocol: Handling and observations, oral gavage, CO2 anesthesia/euthanasia, cervical dislocation, decapitation.

Formal training with lab mice: 24 September 2020, 03 December 2020

Qualifications and experience: PhD, Molecular Biology, 15 years animal research experience

H. Changes in Biohazard/ Safety (Section VII.; EIRB Section 21.0).

N/A

APHC IACUC Protocol Modification Review/Approval

Study Director/ Principal Investigator: Allison M. Narizzano

Phone No.: [REDACTED]

FAX No.: [REDACTED]

Email: [REDACTED]

PROTOCOL #: 26-20-11-01

Protocol Approval Date: 10 November 2020

PROTOCOL
TITLE:

Ecotoxicity of New Film-Forming Foams: Acute and subacute toxicity tests in Mus Musculus

Modification Request #: 2

Submission Date: Apr 12, 2021

Study Director/ Principal
Investigator Signature:

NARIZZANO.ALLISON.MARIE.1367161236

Digitally signed by NARIZZANO.ALLISON.MARIE.1367161236
Date: 2021.04.16 09:38:04 -04'00'

For review use only:

Review Process: ADMIN ☐

FCR ☐

DMR ☒

Received Date: 16 Apr 21

AURO receipt:

SEYFERT.ALLISON.MARIE.1473772210

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SEYFERT.ALLISON.MARIE.1473772210
Date: 2021.04.16 12:12:35 -04'00'

IACUC Designated Member Reviewer(s) (Sign when review is completed. AV and IC doing DM review for minor modifications IAW IACUC LGD will just sign in lower section on their respective signature lines.):

Attending/ Alternate Veterinarian Review Signature:

22-Apr-2021

Date

GEHLING.ALICIA.MARIE.1364571689

Digitally signed by GEHLING.ALICIA.MARIE.1364571689
Date: 2021.04.22 13:26:08 -04'00'

Safety Review Signature (if applicable):

Date

LTACO/GLP Review Signature (if applicable):

Date

IACUC Chair Review Signature:

22-Apr-2021

Date

DECK.ADAM.T.1267159900

Digitally signed by DECK.ADAM.T.1267159900
Date: 2021.04.22 13:32:08 -04'00'

Modification IACUC APPROVED ☒

GLP REVIEWED ☐

Date: 22-Apr-2021

APHC IACUC Animal Use Protocol Modification

Study Director/ Principal Investigator: **Allison M. Narizzano**

PROTOCOL #: **26-20-11-01**

Protocol Approval Date: 10 November 2020

PROTOCOL TITLE: **Ecotoxicity of New Film-Forming Foams: Acute and subacute toxicity tests in Mus Musculus**

Phone No.: [REDACTED]

FAX No.: N/A

Email: [REDACTED]

Modification Request #: **2**

Submission Date: 16 April 2021

1. Brief non-technical synopsis of existing protocol or background information pertaining to the modification request.

This protocol tests the toxicity of seven separate aqueous film-forming foam (AFFF) formulations administered orally to mice. The ultimate goal of these tests is to compare the toxicity of new and legacy formulations.

This modification seeks to singly house all male mice on this protocol. Given the degree of conspecific aggression, resultant wounds and/or infections, and in some cases euthanasia thus far in the project, singly housing all male mice will help preserve the statistical power and overall data integrity.

This modification also seeks to adjust the use of 3 male mice on the protocol. No additional animals are being requested.

2. Type(s) of Modification Requested: (check all that apply)

	Type Of Change (See LGD 010 for more details)	X
ADMINISTRATIVE – AURO/GLP REVIEW	Administrative Modifications	
	GLP Modifications	
	Addition or deletion of a qualified technician, co-investigator, or study staff	
MINOR Modifications (examples)	Change in animal usage [e.g., vendor, sex, age, weight, strain, small increase in # of animals used (less than 10% of overall number of approved animals)]	X
	Need to repeat an experiment without the addition of animals	
	Addition/change of sample collection times	
	Addition/change of sample collection volumes	
	Additional noninvasive sampling	
	Changes in acclimation or recovery period	

	Special housing request or change in husbandry procedures that do not deviate from the <i>Guide</i>	
	Changes in dosing procedures (e.g., dose, volume, or timing)	
	Other: _____	
MAJOR Modifications (examples)	Change in SD/PI	
	Change in objectives of the study	
	Addition of a test article to be evaluated	
	Change that results in greater pain, distress, or degree of invasiveness (changes to pain categories D or E from C require a literature search for alternatives to be completed)	
	Addition of animals to pain Category E (literature search for alternatives required)	
	Addition of or change in Species	
	Addition of more than 10% of the total # of animals originally approved	
	Addition of blood sampling	
	Change in frequency of observations for morbidity	
	Change in study endpoint	
	Change in euthanasia method	
	Changes in feeding, housing, care, or use of animals that is not standard for the species or IAW <i>The Guide</i>	X
	Changes from nonsurvival to survival surgery	
	Change that impacts personnel safety	
	Other change that relates to the specific experimental design and aims of the original protocol	
	Other: _____	

3. PREVIOUSLY APPROVED MODIFICATIONS: (*Hit 'Enter' after description of each modification to list all individually.*)

Mod #	Short Description of the Amendment(s) (Include pain category breakdown of animal usage if changes were made from the original protocol)	No. & Species of Animal Requested	Approval Date
1	Additional of qualified personnel	0	04 FEB 21

4. CURRENT APPROVED ANIMAL USAGE ON PROTOCOL:

Species/Total: CD-1 mice/1,535 B: 0 C: 296 D: 140 E: 1099

5. FOR ITEMS A-H BELOW: Describe the requested changes to be implemented and the justification(s) for each. *Please include section numbers of protocol for reference.*

A. Administrative change: Editorial (typographical, grammar, contact info update, etc.), GLP compliance changes, or change in personnel (not change of study director/principal investigator):

Additional references:

Kappel S., Hawkins P., Mendl M.T. To group or not to group? Good practice for housing male laboratory mice. *Animals (Basel)* 2017; 7(12): 88. doi: 10.3390/ani7120088

Van Loo P.L.P., Van Zutphen L.F.M., Baumans V. Male management: Coping with aggression problems in male laboratory mice. *Lab. Anim.* 2003;37:300–313. doi: 10.1258/002367703322389870.

Weber E.M., Dallaire J.A., Gaskill B.N., Pritchett-Corning K.R., Garner J.P. Aggression in group-housed laboratory mice: Why can't we solve the problem? *Lab. Anim.* 2017;46:157–161. doi: 10.1038/labani.1219.

B. Specific changes or additions to the experimental design of the protocol (Section V.1. Experimental Design; EIRB Section 9.1 Experimental Design and General Procedures).

N/A

C. Change in sample size evaluation, data analysis plan, archiving of data, (Section V.2.; EIRB Section 9.3).

N/A

D. Change in the animals used, (Section V.3.; EIRB Sections 5.0, 9.4-9.6, 10.0).
(Include any changes in amount used, sex, age/weight, vendor/source, refinement, reduction, and replacement [3Rs]).

The original protocol requested 546 and 128 animals for the acute and pilot phases, respectively. However, only 312 animals were necessary to complete these two phases, due to the low acute toxicity of each formulation, which negated the need for sequential stages.

As such, 362 requested animals were not used. However, the number of animals calculated for the micronucleus assay (MNA, a portion of the subacute toxicity tests) was miscalculated. As such, this modification seeks to move 3 male mice from the acute phase of the project to the subacute phase.

Per the original protocol: "Each 28-day test with two formulations will include an additional 6 male mice to serve as shared positive and negative controls for a micronucleus assay (displayed as 3/formulation for clarity)." This suggests a need for 21 total male mice for the MNA. However, an additional 6 male mice are needed *regardless* of how many formulations are tested at a time. Therefore, 3 male mice originally planned for the acute phase of this project (slated as Category E) will instead be used for the MNA portion of the subacute phase (also Category E). Even so, 309 fewer animals total will be used on this protocol.

E. Changes to technical methods (Section V.4.; EIRB Sections 11.0-17.0). (Include changes in USDA pain category classifications [section V.4.1.1.1.1 thru V.4.1.1.1.4.], changes

in anesthesia, analgesia, restraint, injections, identification, behavior studies, 'other procedures', study endpoint, euthanasia, etc. Include reference source for basis of dose/treatment change.).

****** If the modification requested will be adding animals to COLUMN D or E and the protocol did not previously have animals in those categories, a LITERATURE SEARCH FOR ALTERNATIVES TO PAINFUL OR DISTRESSFUL PROCEDURES must be completed and submitted with this modification request.***

N/A

F. Changes to the Husbandry and Veterinary Care procedures (Section V.5.; EIRB Sections 18.0, 19.0). *(Changes in husbandry considerations, special provisions, exceptions to the Guide, AWAR, or IACUC Policy that have an impact on animal care and use; any changes to the veterinary medical care or environmental enrichment.)*

Laboratory mice are largely recognized as social animals and, thus, are group-housed. However, male mice do not naturally share territories, and aggression can be a welfare concern (Kappel *et al.*, 2017). Although aggressive and/or dominant behaviors are “natural,” they may cause stress, pain, etc. in the confines of standard laboratory housing (Van Loo *et al.*, 2003, Weber *et al.*, 2017).

Per the original protocol: “A reasonable attempt will be made to socially house all animals. In instances of incompatibility and/or aggression between cage mates that cannot be remedied, animals may be separated and housed individually.” However, during the acute and immune pilot phases of this project, more than 20% of male cages were separated due to incompatibility and/or aggression. Additionally, 6.4% of male mice warranted treatment with triple antibiotic ointment (TAO) and 7.7% of male mice warranted early removal from the study, which may confound results or reduce statistical power, respectively.

In the 9 days since animals arrived for the subacute phase of the project, more than 33% of male cages have been separated due to incompatibility and/or aggression and 1.6% of male mice warranted early removal from the study. Given the current rate at which fighting-induced early study removal is occurring, and that animals are in-house for subacute studies for 7 weeks, another 12 mice could be prematurely euthanized, or 11% of the total male population.

Therefore, to prevent premature euthanasia due to incompatibility and/or aggression in the subacute phase of this project, all male mice will be singly housed. The decision to singly house male mice was made in consultation with the Attending Veterinarian and the Veterinary Support Office, and doing so will help ensure data integrity, which is preferable from the perspective of animal welfare.

G. Changes to the personnel conducting this protocol (Section VI.; EIRB Section 3.0). *(Include record of completed training for any animal handling or use procedures assigned to new personnel. Signed assurance page(s) must be included with the modification if changing SD/PI, Primary Co-investigator, or adding a co-investigator.)*

H. Changes in Biohazard/ Safety (Section VII.; EIRB Section 21.0).

N/A

APHC IACUC Protocol Modification Review/Approval

Study Director/ Principal Investigator: Allison M. Narizzano

Phone No.: [REDACTED]

FAX No.: [REDACTED]

Email: [REDACTED]

PROTOCOL #: 26-20-11-01

Protocol Approval Date: 10 November 2020

PROTOCOL
TITLE:

Ecotoxicity of New Film-Forming Foams: Acute and subacute toxicity tests in *Mus musculus*

Modification Request #: 3

Submission Date: May 13, 2021

Study Director/ Principal
Investigator Signature:

NARIZZANO.ALLISON.MARIE.1367161236

Digitally signed by NARIZZANO.ALLISON.MARIE.1367161236
Date: 2021.05.13 07:48:27 -04'00'

For review use only:

Review Process: ADMIN ☒

FCR ☐

DMR ☐

Received Date: 13 May 2021

AURO receipt:

SEYFERT.ALLISON.MARIE.1473772210

Digitally signed by
SEYFERT.ALLISON.MARIE.1473772210
Date: 2021.05.13 10:01:03 -04'00'

IACUC Designated Member Reviewer(s) (Sign when review is completed. AV and IC doing DM review for minor modifications IAW IACUC LGD will just sign in lower section on their respective signature lines.):

Attending/ Alternate Veterinarian Review Signature:

Date

Safety Review Signature (if applicable):

Date

LTACO/GLP Review Signature (if applicable):

Date

IACUC Chair Review Signature:

14-May-2021

Date

NEWKIRK.KRISTIN.TORELL.1014786895

Digitally signed by NEWKIRK.KRISTIN.TORELL.1014786895
Date: 2021.05.14 08:28:37 -04'00'

Modification IACUC APPROVED ☒

GLP REVIEWED ☐

Date: 14-May-2021

APHC IACUC Animal Use Protocol Modification

Study Director/ Principal Investigator: **Allison M. Narizzano**

PROTOCOL #: **26-20-11-01**

Protocol Approval Date: 10 November 2020

PROTOCOL TITLE: **Ecotoxicity of New Film-Forming Foams: Acute and subacute toxicity tests in Mus Musculus**

Phone No.: [REDACTED]

FAX No.: N/A

Email: [REDACTED]

Modification Request #: **3**

Submission Date: 13 May 2021

1. Brief non-technical synopsis of existing protocol or background information pertaining to the modification request.

This protocol tests the toxicity of seven separate aqueous film-forming foam (AFFF) formulations administered orally to mice. The ultimate goal of these tests is to compare the toxicity of new and legacy formulations.

This modification seeks to update training/proficiency in order to list submandibular venipuncture as a procedure to be performed by Andrew East.

2. Type(s) of Modification Requested: (check all that apply)

	Type Of Change (See LGD 010 for more details)	X
ADMINISTRATIVE – AURO/GLP REVIEW	Administrative Modifications	
	GLP Modifications	
	Addition or deletion of a qualified technician, co-investigator, or study staff	X
MINOR Modifications (examples)	Change in animal usage [e.g., vendor, sex, age, weight, strain, small increase in # of animals used (less than 10% of overall number of approved animals)]	
	Need to repeat an experiment without the addition of animals	
	Addition/change of sample collection times	
	Addition/change of sample collection volumes	
	Additional noninvasive sampling	
	Changes in acclimation or recovery period	
	Special housing request or change in husbandry procedures that do not deviate from the <i>Guide</i>	
	Changes in dosing procedures (e.g., dose, volume, or timing)	
	Other: _____	
MAJOR Modification	Change in SD/PI	
	Change in objectives of the study	

	Addition of a test article to be evaluated	
	Change that results in greater pain, distress, or degree of invasiveness (changes to pain categories D or E from C require a literature search for alternatives to be completed)	
	Addition of animals to pain Category E (literature search for alternatives required)	
	Addition of or change in Species	
	Addition of more than 10% of the total # of animals originally approved	
	Addition of blood sampling	
	Change in frequency of observations for morbidity	
	Change in study endpoint	
	Change in euthanasia method	
	Changes in feeding, housing, care, or use of animals that is not standard for the species or IAW <i>The Guide</i>	
	Changes from nonsurvival to survival surgery	
	Change that impacts personnel safety	
	Other change that relates to the specific experimental design and aims of the original protocol	
	Other: _____	

3. PREVIOUSLY APPROVED MODIFICATIONS: (*Hit 'Enter' after description of each modification to list all individually.*)

Mod #	Short Description of the Amendment(s) (Include pain category breakdown of animal usage if changes were made from the original protocol)	No. & Species of Animal Requested	Approval Date
1	Additional of qualified personnel	0	04 FEB 21
2	Single housing of male male. Adjustment of use of 3 male mice (no additional animals requested).	0	22 APR 21

4. CURRENT APPROVED ANIMAL USAGE ON PROTOCOL:

Species/Total: CD-1 mice/1,535 **B:** 0 **C:** 296 **D:** 140 **E:** 1099

5. FOR ITEMS A-H BELOW: Describe the requested changes to be implemented and the justification(s) for each. *Please include section numbers of protocol for reference.*

A. Administrative change: Editorial (typographical, grammar, contact info update, etc.), GLP compliance changes, or change in personnel (not change of study director/principal investigator):

Update training for Andrew East to reflect proficiency of submandibular venipuncture. See 5.G.

B. Specific changes or additions to the experimental design of the protocol (Section V.1. Experimental Design; EIRB Section 9.1 Experimental Design and General Procedures).

N/A

C. Change in sample size evaluation, data analysis plan, archiving of data, (Section V.2.; EIRB Section 9.3).

N/A

D. Change in the animals used, (Section V.3.; EIRB Sections 5.0, 9.4-9.6, 10.0). *(Include any changes in amount used, sex, age/weight, vendor/source, refinement, reduction, and replacement [3Rs]).*

N/A

E. Changes to technical methods (Section V.4.; EIRB Sections 11.0-17.0). *(Include changes in USDA pain category classifications [section V.4.1.1.1.1 thru V.4.1.1.1.4.], changes in anesthesia, analgesia, restraint, injections, identification, behavior studies, 'other procedures', study endpoint, euthanasia, etc. Include reference source for basis of dose/treatment change.).*

***** If the modification requested will be adding animals to COLUMN D or E and the protocol did not previously have animals in those categories, a LITERATURE SEARCH FOR ALTERNATIVES TO PAINFUL OR DISTRESSFUL PROCEDURES must be completed and submitted with this modification request.**

N/A

F. Changes to the Husbandry and Veterinary Care procedures (Section V.5.; EIRB Sections 18.0, 19.0). *(Changes in husbandry considerations, special provisions, exceptions to the Guide, AWAR, or IACUC Policy that have an impact on animal care and use; any changes to the veterinary medical care or environmental enrichment.)*

N/A

G. Changes to the personnel conducting this protocol (Section VI.; EIRB Section 3.0). *(Include record of completed training for any animal handling or use procedures assigned to new personnel. Signed assurance page(s) must be included with the modification if changing SD/PI, Primary Co-investigator, or adding a co-investigator.)*

Add training/proficiency of submandibular venipuncture for Andrew East.

Formal training on mouse submandibular venipuncture: 4/20/21, 4/21/21, 4/27/21, 4/28/21, 4/29/21, and 5/3/21

H. Changes in Biohazard/ Safety (Section VII.; EIRB Section 21.0).

N/A

APHC IACUC Protocol Modification Review/Approval

Study Director/ Principal Investigator: Dr. Allison M. Narizzano; Andrew G. East

Phone No.: [REDACTED]

FAX No.: [REDACTED]

Email: [REDACTED]

PROTOCOL #: 26-20-11-01 Protocol Approval Date: 10NOV2020

PROTOCOL TITLE: Ecotoxicity of New Film-Forming Foams: Acute and subacute toxicity tests in Mus Musculus

Modification Request #: 4 Submission Date: Sep 8, 2021

Study Director/ Principal Investigator Signature: EAST.ANDREW.GENE.1588417979 Digitally signed by EAST.ANDREW.GENE.1588417979 Date: 2021.09.08 15:25:56 -04'00'

For review use only: Review Process: ADMIN ☐ FCR ☐ DMR ☒

Received Date: 13-Sep-2021 AURO receipt: DAWSON.CHELSEA.LEE.1544052116 Digitally signed by DAWSON.CHELSEA.LEE.1544052116 Date: 2021.09.13 09:59:40 -04'00'

IACUC Designated Member Reviewer(s) (Sign when review is completed. AV and IC doing DM review for minor modifications IAW IACUC LGD will just sign in lower section on their respective signature lines.):

Attending/ Alternate Veterinarian Review Signature:

15 Sep 2021

Date

GEHLING.ALICIA.MARIE.1364571689 Digitally signed by GEHLING.ALICIA.MARIE.1364571689 Date: 2021.09.15 12:08:32 -04'00'

Safety Review Signature (if applicable):

Date

LTACO/GLP Review Signature (if applicable):

Date

IACUC Chair Review Signature:

15 Sep 2021

Date

NEWKIRK.KRISTIN.TORELL.1014786895 Digitally signed by NEWKIRK.KRISTIN.TORELL.1014786895 Date: 2021.09.15 12:12:18 -04'00'

Modification IACUC APPROVED ☒ GLP REVIEWED ☐ Date: 15 Sep 2021

APHC IACUC Animal Use Protocol Modification

Study Director/ Principal Investigator: **Dr. Allison M. Narizzano; Andrew G. East**

PROTOCOL #: **26-20-11-01**

Protocol Approval Date: 10 November 2020

PROTOCOL TITLE: **Ecotoxicity of New Film-Forming Foams: Acute and subacute toxicity tests in Mus Musculus**

Phone No.: [REDACTED] FAX No.:

Email: [REDACTED]

Modification Request #: 4

Submission Date: 8 September 2021

1. Brief non-technical synopsis of existing protocol or background information pertaining to the modification request.

This protocol tests the toxicity of seven separate aqueous film-forming foam (AFFF) formulations administered orally to mice. The ultimate goal of these tests is to compare the toxicity of new and legacy formulations.

This modification requests an increase in blood sampling volume during the submandibular venipuncture procedure in MNA control animals on day 28 (as described in sections 9.1D, 15.9, and 15.17). This modification also includes an administrative modification to text in section 9.1D pertaining to potential sample collection post-euthanasia of MNA control animals.

2. Type(s) of Modification Requested: (check all that apply)

	Type Of Change (See LGD 010 for more details)	X
ADMINISTRATIVE - AURO/GLP REVIEW	Administrative Modifications	X
	GLP Modifications	
	Addition or deletion of a qualified technician, co-investigator, or study staff	
MINOR Modifications (examples)	Change in animal usage [e.g., vendor, sex, age, weight, strain, small increase in # of animals used (less than 10% of overall number of approved animals)]	
	Need to repeat an experiment without the addition of animals	
	Addition/change of sample collection times	
	Addition/change of sample collection volumes	X
	Additional noninvasive sampling	
	Changes in acclimation or recovery period	
	Special housing request or change in husbandry procedures that do not deviate from the <i>Guide</i>	
	Changes in dosing procedures (e.g., dose, volume, or timing)	
	Other: _____	

MAJOR Modifications (examples)	Change in SD/PI	
	Change in objectives of the study	
	Addition of a test article to be evaluated	
	Change that results in greater pain, distress, or degree of invasiveness (changes to pain categories D or E from C require a literature search for alternatives to be completed)	
	Addition of animals to pain Category E (literature search for alternatives required)	
	Addition of or change in Species	
	Addition of more than 10% of the total # of animals originally approved	
	Addition of blood sampling	
	Change in frequency of observations for morbidity	
	Change in study endpoint	
	Change in euthanasia method	
	Changes in feeding, housing, care, or use of animals that is not standard for the species or IAW <i>The Guide</i>	
	Changes from nonsurvival to survival surgery	
	Change that impacts personnel safety	
	Other change that relates to the specific experimental design and aims of the original protocol	
	Other: _____	

3. PREVIOUSLY APPROVED MODIFICATIONS: (*Hit 'Enter' after description of each modification to list all individually.*)

Mod #	Short Description of the Amendment(s) (Include pain category breakdown of animal usage if changes were made from the original protocol)	No. & Species of Animal Requested	Approval Date
1	Addition of qualified personnel	0	04 FEB 21
2	Single housing of male mice. Adjustment of use of 3 male mice (no additional animals requested).	0	22 APR 21
3	Addition of qualified personnel	0	14 MAY 21

4. CURRENT APPROVED ANIMAL USAGE ON PROTOCOL:

Species/Total: CD-1 mice/1535 B: 0 C: 296 D: 140 E: 1099

5. FOR ITEMS A-H BELOW: Describe the requested changes to be implemented and the justification(s) for each. *Please include section numbers of protocol for reference.*

A. Administrative change: Editorial (typographical, grammar, contact info update, etc.), GLP compliance changes, or change in personnel (not change of study director/principal investigator):

N/A

B. Specific changes or additions to the experimental design of the protocol (Section V.1. Experimental Design; EIRB Section 9.1 Experimental Design and General Procedures).

Paragraph describing day 28 sample collection from MNA control animals in section 9.1D should also include the potential collection of tissue or fluids post-euthanasia. Replacement paragraph should read: "On day 28, MNA controls will be biosampled via submandibular or saphenous venipuncture as described in sections 15.9 and 15.17. These biosamples will serve as positive control samples. Immediately thereafter, animals will be rendered unconscious with CO2 gas (11.5) and euthanized (17.1). Trunk blood may be collected and animals may undergo necropsy." This additional sentence ensures maximization of animal usage and collection of samples post-euthanasia.

C. Change in sample size evaluation, data analysis plan, archiving of data, (Section V.2.; EIRB Section 9.3).

N/A

D. Change in the animals used, (Section V.3.; EIRB Sections 5.0, 9.4-9.6, 10.0). *(Include any changes in amount used, sex, age/weight, vendor/source, refinement, reduction, and replacement [3Rs]).*

N/A

E. Changes to technical methods (Section V.4.; EIRB Sections 11.0-17.0). *(Include changes in USDA pain category classifications [section V.4.1.1.1.1 thru V.4.1.1.1.4.], changes in anesthesia, analgesia, restraint, injections, identification, behavior studies, 'other procedures', study endpoint, euthanasia, etc. Include reference source for basis of dose/treatment change.).*

****** If the modification requested will be adding animals to COLUMN D or E and the protocol did not previously have animals in those categories, a LITERATURE SEARCH FOR ALTERNATIVES TO PAINFUL OR DISTRESSFUL PROCEDURES must be completed and submitted with this modification request.***

Preliminary trunk blood hematology results indicate that treatment animals with MNA samples collected via submandibular venipuncture (described in section 9.1D) are presenting short term stress responses. To evaluate this potentially confounding response in study effects and refine future hematology sample collection and analysis, we aim to collect hematology samples during the submandibular venipuncture procedure rather than via trunk blood post euthanasia. In order to test the performance of this refinement prior to modification of future studies (e.g. AUP# 03-20-12-01), the MNA control animals in this protocol (AUP# 26-20-11-01) will have an increased sample volume collected during their day-28 submandibular venipuncture procedure. At the time of the day-28 submandibular venipuncture of MNA control animals

(n=6), an additional blood volume of 20 microliters will be collected. This will increase blood sampling volume from 60-120 (as stated in section 15.9) to 80-140 microliters per animal at the time of the day-28 submandibular venipuncture procedure. The increased 20 microliters of blood will receive hematology analysis as described in 9.1D. Collection and analysis of post-euthanasia trunk blood (as described in Section 5B. above) may occur to create paired hematology samples of submandibular venipuncture and trunk blood in MNA control animals. These paired samples (each individual MNA control animal may have a submandibular venipuncture and trunk blood hematology sample and result) will be statistically analyzed in a paired methodology to assess the significance of this refined sample collection technique. Improvements observed in this modification will likely cue modification in protocols that assess hematology samples in mice (e.g. AUP# 03-20-12-01).

F. Changes to the Husbandry and Veterinary Care procedures (Section V.5.; EIRB Sections 18.0, 19.0). *(Changes in husbandry considerations, special provisions, exceptions to the Guide, AWAR, or IACUC Policy that have an impact on animal care and use; any changes to the veterinary medical care or environmental enrichment.)*

N/A

G. Changes to the personnel conducting this protocol (Section VI.; EIRB Section 3.0). *(Include record of completed training for any animal handling or use procedures assigned to new personnel. Signed assurance page(s) must be included with the modification if changing SD/PI, Primary Co-investigator, or adding a co-investigator.)*

N/A

H. Changes in Biohazard/ Safety (Section VII.; EIRB Section 21.0).

N/A

Appendix E

MicroFlow Mouse Micronucleus Analysis Phase Report

Draft MicroFlow® Mouse Micronucleus Analysis Phase Report, Number 1

Study:	26-20-11-01
Litron Assigned Good Labomouseory Practice Number:	GLP-2021-26-20-11-01
Date Samples Received:	October 13, 2021
Experimental Phase Start Date:	October 14, 2021
Experimental Phase End Date:	October 27, 2021
Date of Draft Phase Report, Number 1:	November 8, 2021
Study Phase Plan:	M51MFv16
Principal Investigator (PI):	Dorothea K. Torous
Test Site:	Litron Laboratories 3500 Winton Place Suite 1B Rochester, New York 14623
Study Director:	Dr. Allison Narizzano
Test Facility:	Army Public Health Center 8988 Willoughby Road (E-2100) Aberdeen Proving Ground, MD 21010

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2. Good Laboratory Practice Compliance Statement

This phase of the study was conducted in compliance with the Principles of Good Laboratory Practice (GLP) by the Organisation for Economic Co-operation and Development (OECD), C(97)186/FINAL.

The study phase data have been reviewed by the Principal Investigator, who certifies that the information contained in this report accurately reflects and is supported by the study phase raw data and represents an appropriate conclusion within the context of the study phase design and evaluation criteria. Methods relating to the receipt and flow cytometric analysis of blood samples, the statistical analysis and data evaluation specified in the test facility's protocol and the MicroFlow Study Phase Plan were followed.

Principal Investigator _____ Date _____

Dorothea K. Torous, B.S.

3. Other Scientists Involved in the Study Phase

Not applicable.

4. Quality Assurance Statement

This study has been subjected to inspection and the report has been audited by the Quality Assurance (QA) Unit of Litron Laboratories in accordance with GLP regulations for non-clinical laboratory studies by the Principles of Good Laboratory Practice, OECD [C(97)186/FINAL]. The report describes the methods and procedures used in the study and the reported results accurately reflect the raw data of the study.

The following inspections were performed by Nikki E. Hall, B.S., RQAP-GLP:

<u>Date</u>	<u>Phase Inspected</u>	<u>Date Reported to PI</u>	<u>Date Reported to Test Site Management</u>	<u>Date Reported to Test Facility SD, QA and Management*</u>
October 13, 2021	Sample Receipt	October 8, 2021	October 10, 2021	November x, 2021
October 14, 2021	Check Protocol/Study Phase Plan	October 13, 2021	October 16, 2021	November x, 2021
October 14, 2021	Solution Preparation	October 13, 2021	October 16, 2021	November x, 2021
October 8, 2021	Sample Staining	October 8, 2021	October 10, 2021	November x, 2021
October 13, 2021	Sample Analysis	October 13, 2021	October 16, 2021	November x, 2021
October 13, 2021	Data Input			
October 13, 2021	October 16, 2021	October 29, 2021		
October 13, 2021	Solution Preparation	October 13, 2021	October 16, 2021	November x, 2021
October 13, 2021	Flow Cytometer Calibration	October 13, 2021	October 16, 2021	November x, 2021
October 13, 2021	Sample Analysis	October 13, 2021	October 16, 2021	November x, 2021
November 5, 2021	Check SOPs	November 8, 2021	October 16, 2021	November x, 2021
November 5, 2021	Check Data Sheets for Completion	November 8, 2021	November x, 2021	November x, 2021
November 5, 2021	Raw Data versus Report	November 8, 2021	November x, 2021	November x, 2021
November 5, 2021	Draft Report Check	November 8, 2021	November x, 2021	November x, 2021
November x, 2021	MicroFlow Report Check	November x, 2021	November x, 2021	November x, 2021

Quality Assurance Auditor _____ Date _____
Nikki E. Hall, B.S., RQAP-GLP

* indicates the date that the inspection reports were sent to the Test Facility.

5. Summary

On October 13, 2021, Litron Laboratories received 250 fixed mouse blood samples from sponsor's study 26-20-11-01. Upon receipt, all samples were stored at -90°C to -80°C until prepared for flow cytometric analysis. Flow cytometric analysis was performed according to Litron's Standard Operating Procedures.

6. Objective

The frequency of reticulocytes (% RET) was determined and used to provide an indication of bone marrow toxicity (i.e., a decrease in the % RET for a treatment group as compared to the Negative Control group). The frequency of micronucleated reticulocytes (% MN-RET) was determined to provide an indication of genotoxicity.

Statistical tests will be performed by the test facility.

7. Materials and Methods

7.1. Experimental Procedures (Performed by Test Facility)

The Test Facility was responsible for following the procedures detailed in the MicroFlow kit manual supplied to the Test Facility. The supplies were provided as a MicroFlow kit by the Test Site. No deviations from the manual were noted.

7.2. Blood Sample Receipt

On October 13, 2021, Litron Laboratories received 250 fixed mouse blood samples from Study 26-20-11-01. Upon receipt, all samples were stored at -90°C to -80°C until prepared for flow cytometric analysis.

7.3. Blood Sample Preparation

The fixed blood samples were thawed and then washed by adding each aliquot to tubes containing 5 ± 1 ml of cold Hank's Balanced Salt Solution (HBSS) + 1% fetal bovine serum. Cells were isolated by centrifugation, and the cell pellets were stored on ice until staining. A $20\ \mu\text{l}$ portion of the cell pellet was used for staining (see section 7.4) and the remaining cell pellet was stored at 2°C to 10°C and discarded upon successful analysis of the samples. After analysis, any remaining cell pellets were discarded after 3 days.

7.4. Staining for Identification of Cell Populations

An aliquot ($20\ \mu\text{l}$) of each washed blood sample was added to $80\ \mu\text{l}$ of a solution containing RNase (to degrade RNA, 1 mg/ml), a fluorescently labeled (fluorescein isothiocyanate; FITC) antibody to the transferrin receptor to label RETs (anti-CD71-FITC, $10\ \mu\text{l}/\text{ml}$), and a fluorescently labeled antibody (phycoerythrin; PE) to label platelets (anti-CD61-PE, $5\ \mu\text{l}/\text{ml}$) in a base of HBSS. The samples were incubated in the labeling solution for 30 ± 10 minutes at 2°C to 10°C and 30 ± 10 minutes at room temperature. After incubation, the cells were kept at 2°C to 10°C until analysis. A propidium iodide (PI) solution ($2\ \text{ml} \pm 0.5\ \text{ml}$) was added to each sample immediately before flow cytometric analysis to stain all DNA, including MN in the cells.

7.5. Flow Cytometer Calibration

Methanol-fixed blood from mice infected with *Plasmodium berghei* and methanol-fixed blood from uninfected rats were used to configure the flow cytometer before analysis. Whereas MN are relatively rare and exhibit a heterogeneous DNA content, parasitized cells are prevalent and have a homogenous DNA content. These characteristics make them ideal for calibrating the flow cytometer for the micronucleus scoring application.

7.6. Analysis of Blood Samples

Each blood sample was analyzed by high-speed flow cytometry using CellQuest software, version 5.2 (Becton Dickinson, San Jose, CA). The stained cells were moved at a high velocity past an argon laser set to provide 488 nm excitation. Photomultiplier tubes collected the fluorescence emitted by each cell. Using the previously described staining procedure, the PI-stained DNA of the MN emitted a red fluorescence, the anti-CD71-FITC antibody emitted a high green fluorescent signal, and platelets were excluded based on their anti-CD61-PE fluorescence. Upon successful analysis of the stained samples, each was discarded.

7.7. Number of Cells Analyzed

For each sample, 20,000 RETs were evaluated for the presence of MN except for Sample 90 (21-0869) where 10,000 RETs were evaluated due to toxicity. This is in accordance with Litron's SOP.

7.8. Data Provided

The number of NCEs, MN-NCEs, RETs and MN-RETs are provided for each sample analyzed. The frequency of MN-RETs and MN-NCEs were calculated as an indication of genotoxic potential. The % RET was determined to provide an indication of bone marrow toxicity.

7.9. Statistical Analysis of the Data

No statistical analyses were performed on the data. The Test Facility is responsible for the evaluation and interpretation of results.

8. Records Maintained

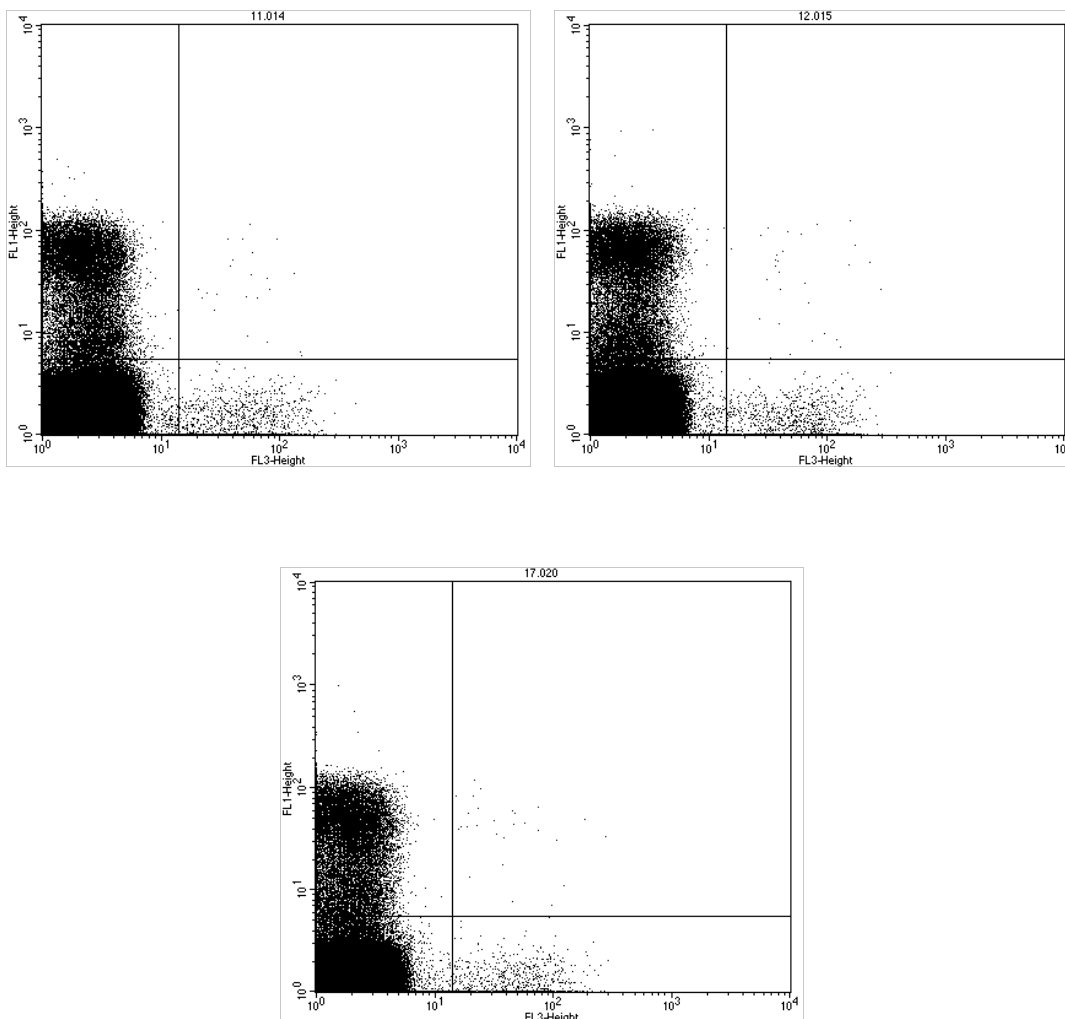
The study phase plan, MicroFlow report, and study-specific records (copies, if applicable) will be transferred to the test facility at the completion of the study phase. Litron will maintain copies of the report, protocol, study phase plan, and other study-specific records for two years following completion of the study. After the retention period, Litron will contact the test facility and study-specific records will either be discarded or sent to the test facility-requested location.

9. References

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- Section 4 of the OECD Guidelines for the Testing of Chemicals: Mammalian Erythrocyte Micronucleus Test, Guideline 474 (Adopted 26th September 2014).
- Where applicable, GLP regulations for non-clinical laboratory studies as developed by the FDA (21 CFR 58). Please note that the computerized systems utilized for data acquisition, data analysis and report generation have undergone an internal validation guided by FDA GLP regulations. Litron is working towards 21 CFR part 11 compliance.
- Where applicable, ICH Harmonised Tripartite Guideline: Guidance on Genotoxicity Testing and Data Interpretation for Pharmaceuticals Intended for Human Use, S2(R1), current Step 4 version dated 9 November 2011.

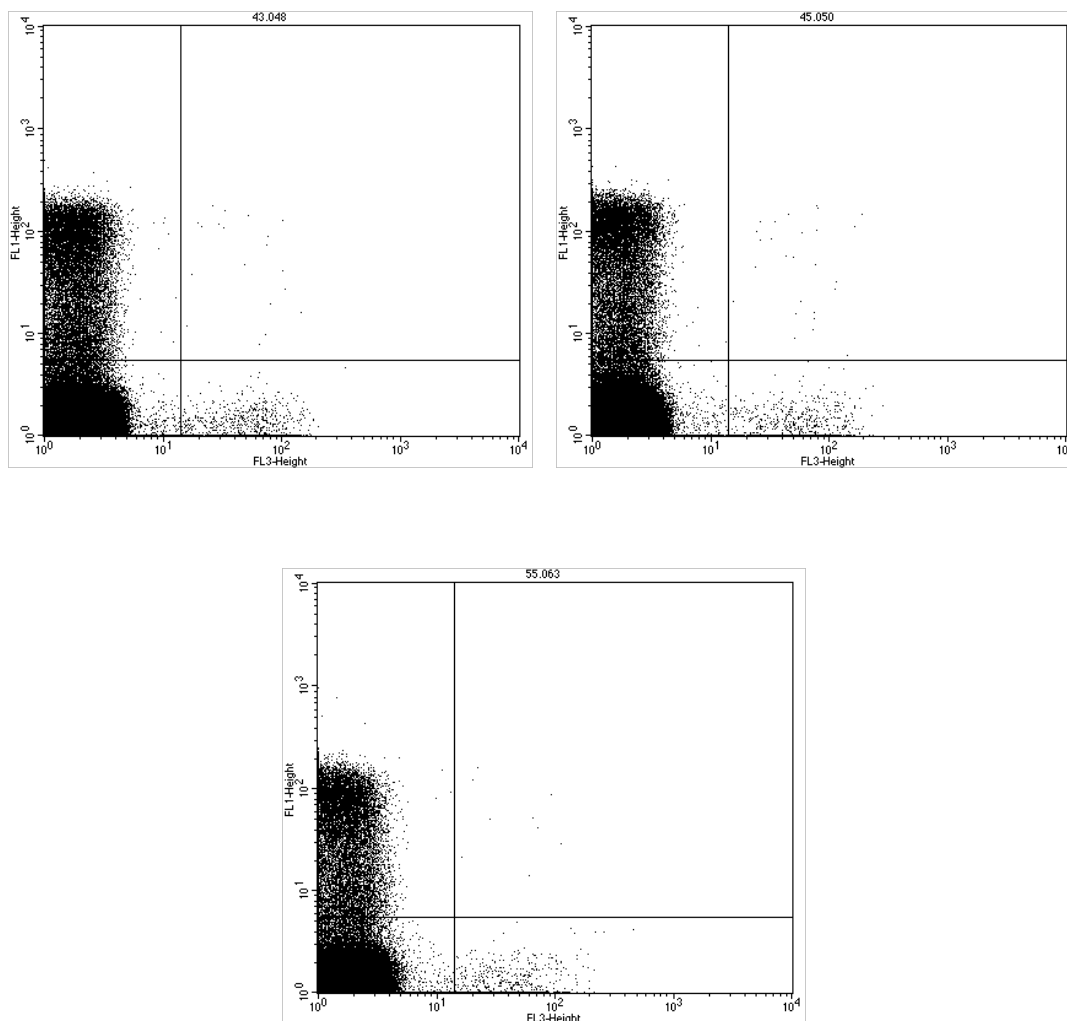
Figures 1 - 3: Representative Bivariates – AvioGreen

These representative bivariates of Test Facility submitted mouse blood samples illustrate the resolution of the various erythrocyte populations for each dose group. Lower Left quadrant = NCE [cells which are low in green and red fluorescence]; Lower Right = MN-NCE [cells high in red (PI) fluorescence]; Upper Left = high CD71 positive RET [cells with green (CD71) fluorescence]; Upper Right = high CD71 positive MN-RET [cells with both red and green fluorescence; the population of primary interest for this analysis].



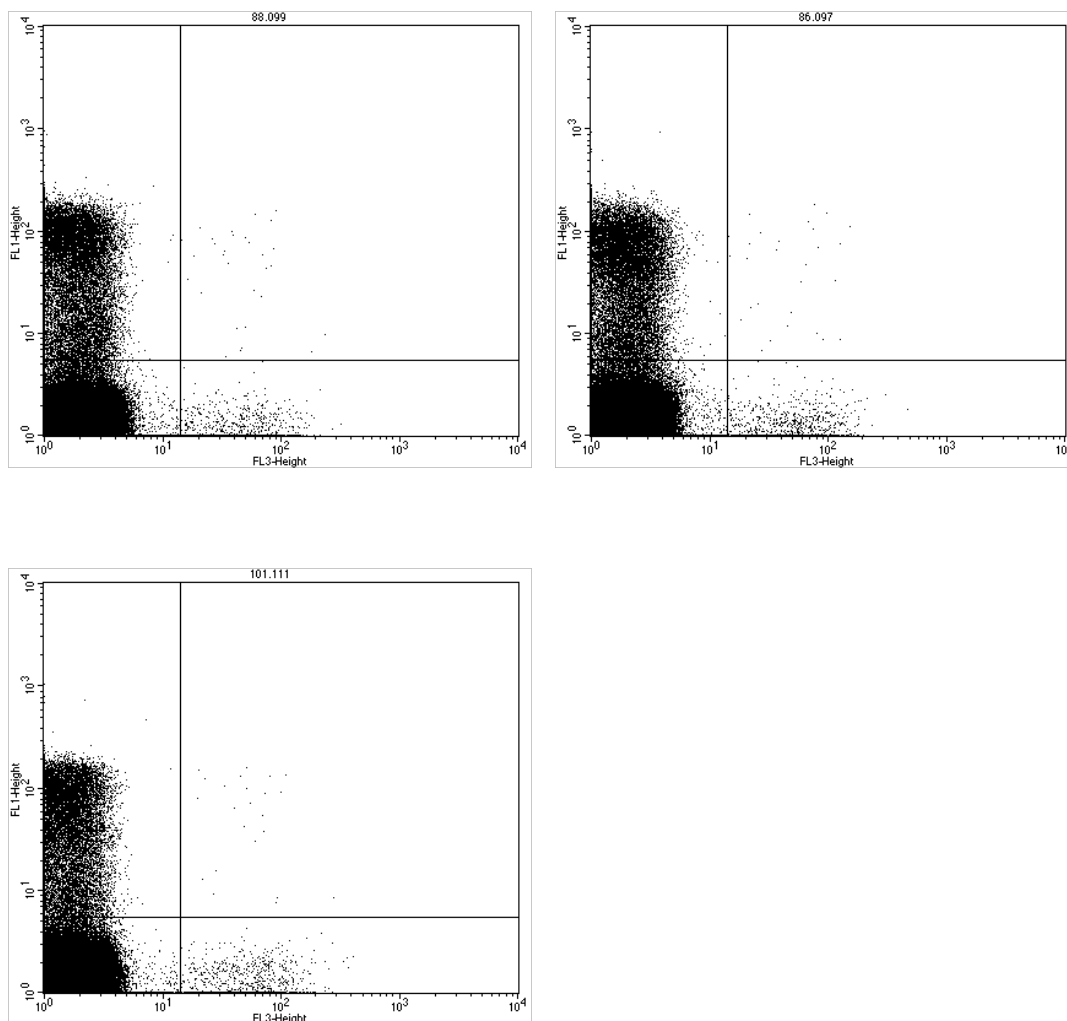
Figures 4 - 6: Representative Bivariates – NRL 502W

These representative bivariates of Test Facility submitted mouse blood samples illustrate the resolution of the various erythrocyte populations for each dose group. Lower Left quadrant = NCE [cells which are low in green and red fluorescence]; Lower Right = MN-NCE [cells high in red (PI) fluorescence]; Upper Left = high CD71 positive RET [cells with green (CD71) fluorescence]; Upper Right = high CD71 positive MN-RET [cells with both red and green fluorescence; the population of primary interest for this analysis].



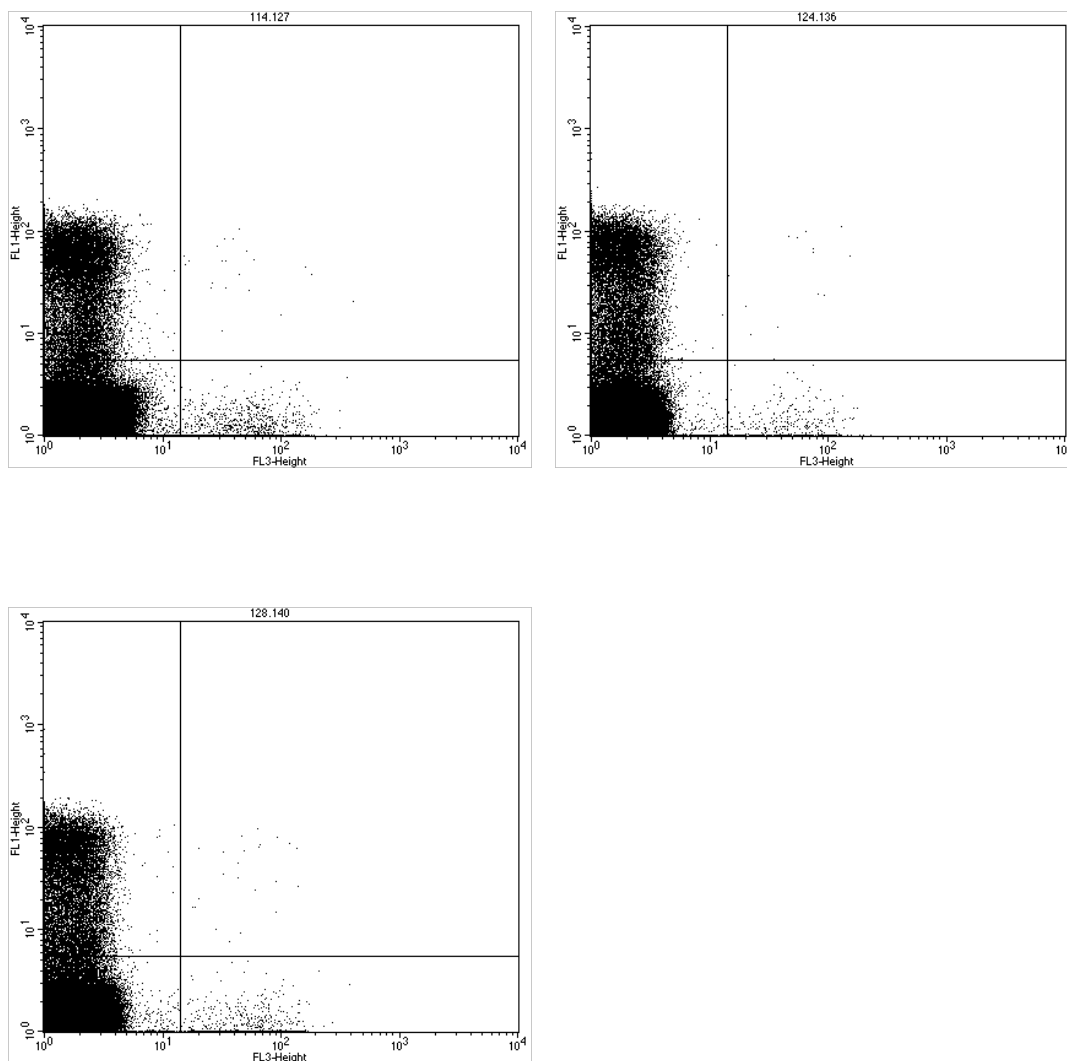
Figures 7 - 9: Representative Bivariates – ReHealing

These representative bivariates of Test Facility submitted mouse blood samples illustrate the resolution of the various erythrocyte populations for each dose group. Lower Left quadrant = NCE [cells which are low in green and red fluorescence]; Lower Right = MN-NCE [cells high in red (PI) fluorescence]; Upper Left = high CD71 positive RET [cells with green (CD71) fluorescence]; Upper Right = high CD71 positive MN-RET [cells with both red and green fluorescence; the population of primary interest for this analysis].



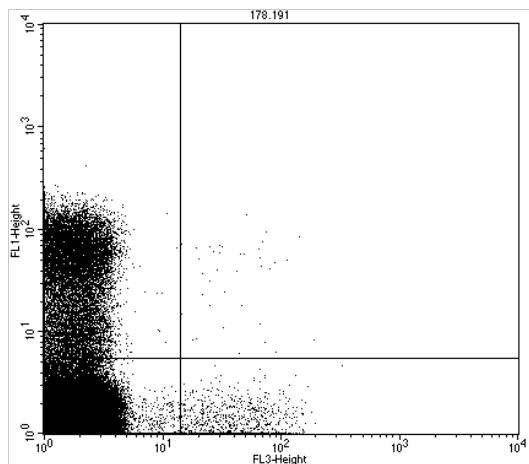
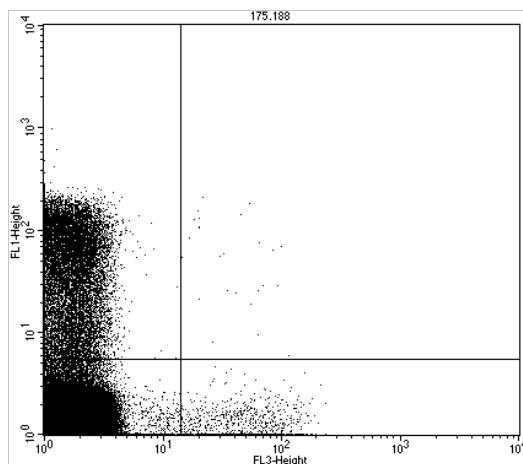
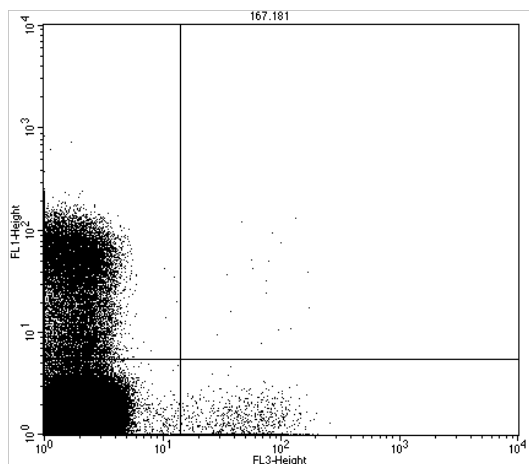
Figures 10 - 12: Representative Bivariates – ECOPOL A

These representative bivariates of Test Facility submitted mouse blood samples illustrate the resolution of the various erythrocyte populations for each dose group. Lower Left quadrant = NCE [cells which are low in green and red fluorescence]; Lower Right = MN-NCE [cells high in red (PI) fluorescence]; Upper Left = high CD71 positive RET [cells with green (CD71) fluorescence]; Upper Right = high CD71 positive MN-RET [cells with both red and green fluorescence; the population of primary interest for this analysis].



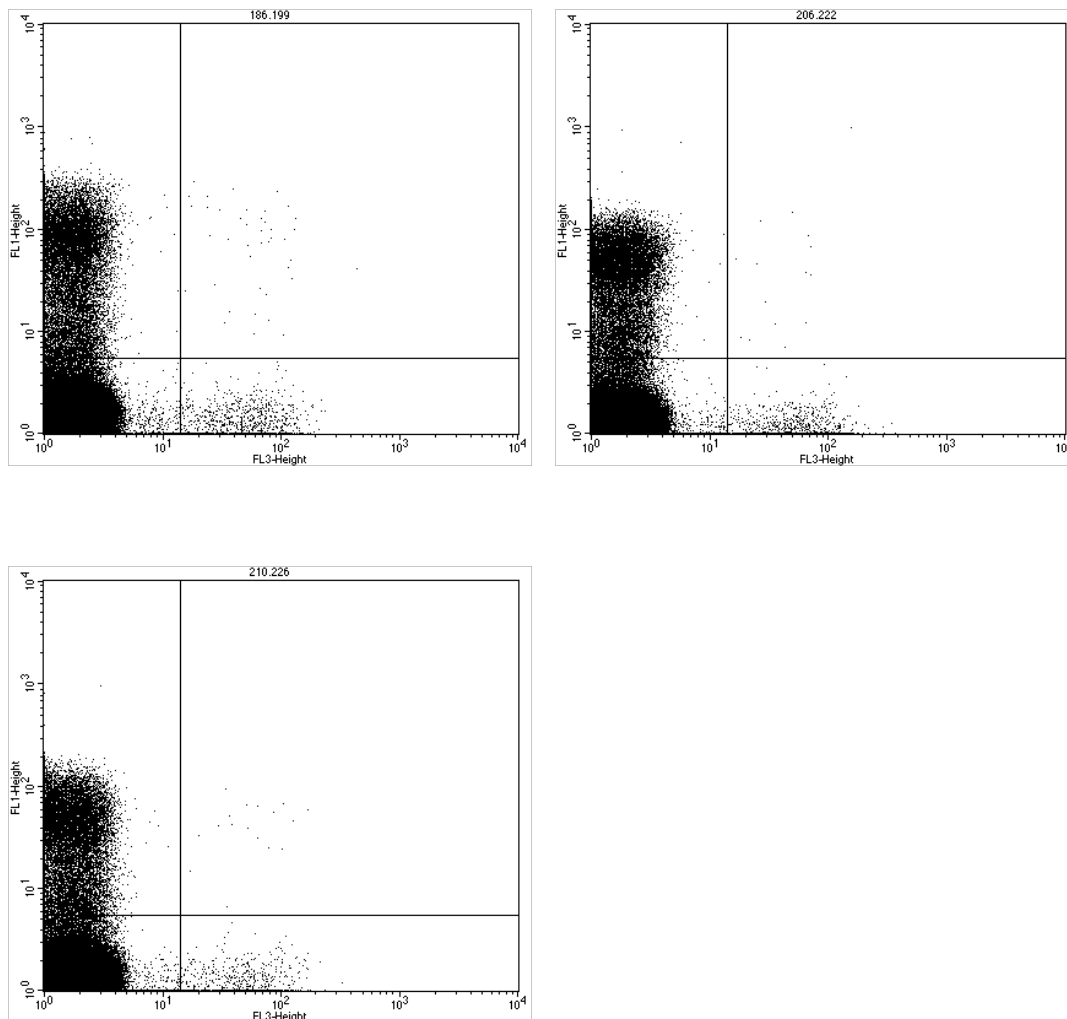
Figures 13 - 15: Representative Bivariates – Enviro

These representative bivariates of Test Facility submitted mouse blood samples illustrate the resolution of the various erythrocyte populations for each dose group. Lower Left quadrant = NCE [cells which are low in green and red fluorescence]; Lower Right = MN-NCE [cells high in red (PI) fluorescence]; Upper Left = high CD71 positive RET [cells with green (CD71) fluorescence]; Upper Right = high CD71 positive MN-RET [cells with both red and green fluorescence; the population of primary interest for this analysis].



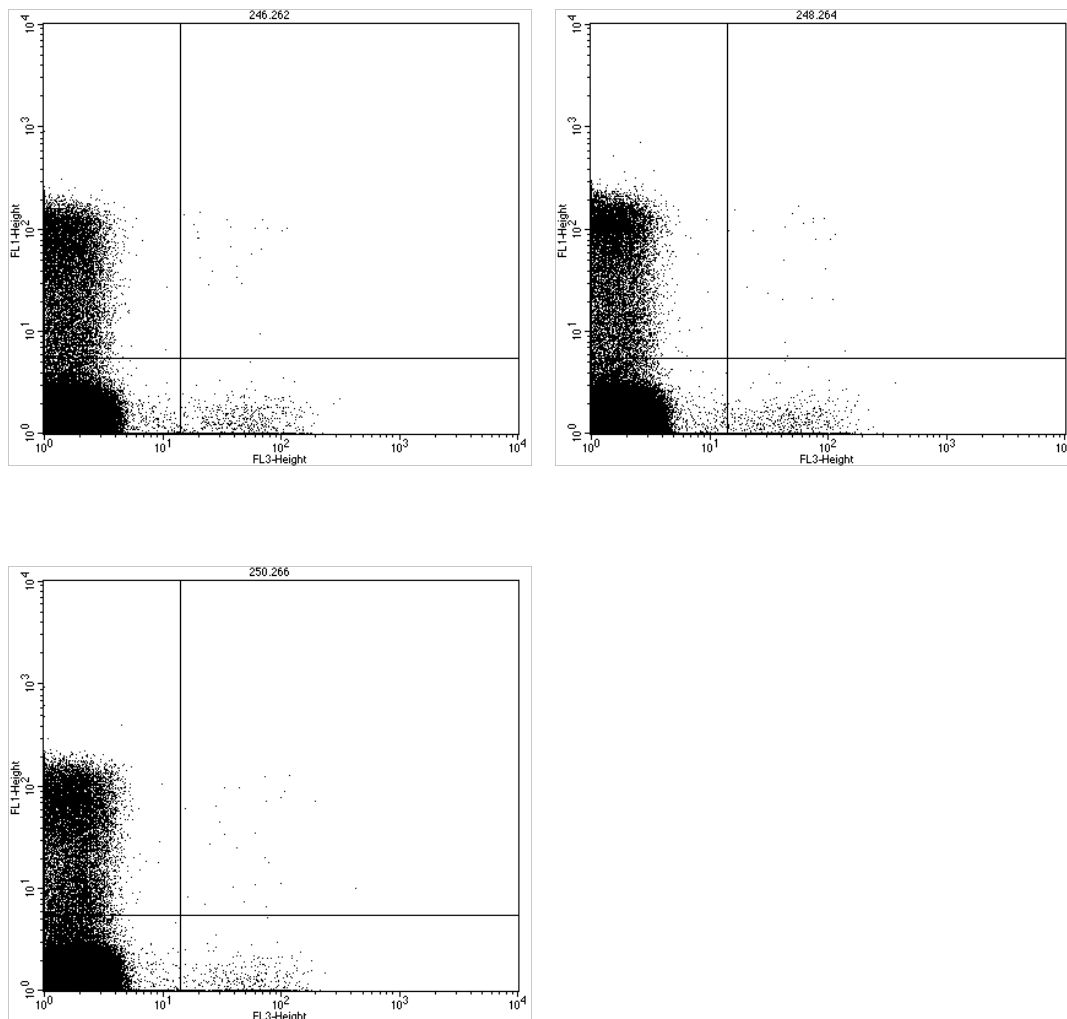
Figures 16 - 18: Representative Bivariates – 20-391

These representative bivariates of Test Facility submitted mouse blood samples illustrate the resolution of the various erythrocyte populations for each dose group. Lower Left quadrant = NCE [cells which are low in green and red fluorescence]; Lower Right = MN-NCE [cells high in red (PI) fluorescence]; Upper Left = high CD71 positive RET [cells with green (CD71) fluorescence]; Upper Right = high CD71 positive MN-RET [cells with both red and green fluorescence; the population of primary interest for this analysis].



Figures 19 - 21: Representative Bivariates – Buckeye

These representative bivariates of Test Facility submitted mouse blood samples illustrate the resolution of the various erythrocyte populations for each dose group. Lower Left quadrant = NCE [cells which are low in green and red fluorescence]; Lower Right = MN-NCE [cells high in red (PI) fluorescence]; Upper Left = high CD71 positive RET [cells with green (CD71) fluorescence]; Upper Right = high CD71 positive MN-RET [cells with both red and green fluorescence; the population of primary interest for this analysis].



Figures 22 - 23: Representative Bivariates – Negative and Positive Controls

These representative bivariates of Test Facility submitted mouse blood samples illustrate the resolution of the various erythrocyte populations for each dose group. Lower Left quadrant = NCE [cells which are low in green and red fluorescence]; Lower Right = MN-NCE [cells high in red (PI) fluorescence]; Upper Left = high CD71 positive RET [cells with green (CD71) fluorescence]; Upper Right = high CD71 positive MN-RET [cells with both red and green fluorescence; the population of primary interest for this analysis].

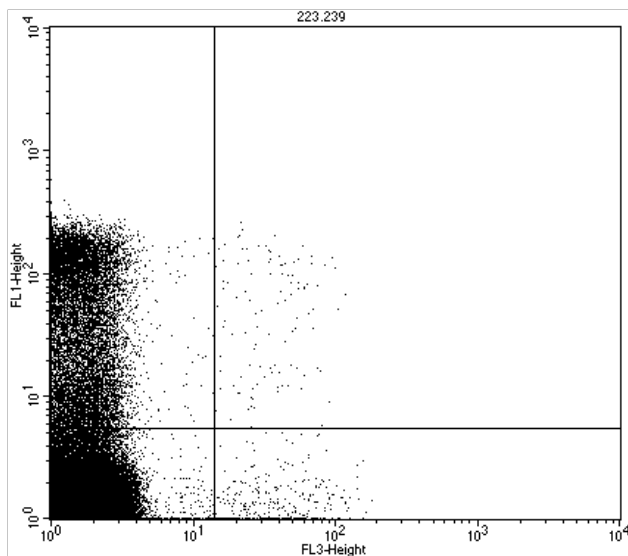
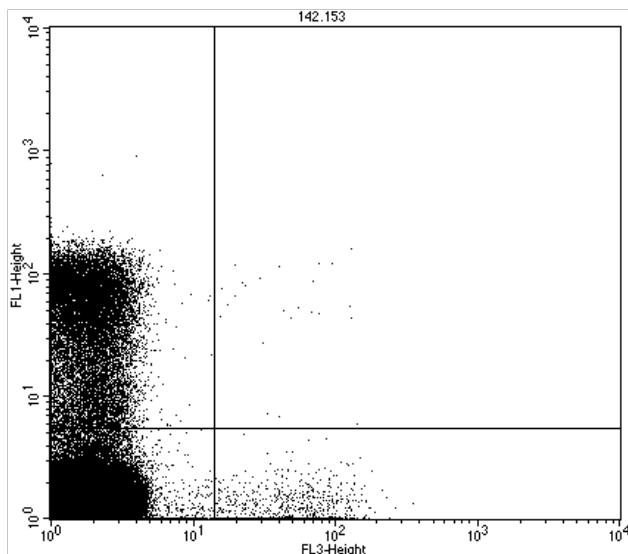


Table 1: Individual Animal Blood Data – Raw Data – Samples 1 - 40

Unique #	Sample ID	Date Collected	Formulation	Dose	No. NCE ¹	No. MN-NCE ²	No. RET ³	No. MN-RET ⁴
1	21-0619	10-May-21	n/a	negative control	1014948	1482	19960	40
2	21-0617	10-May-21	n/a	negative control	962359	1302	19965	35
3	21-0621	10-May-21	n/a	negative control	1033710	820	19978	22
4	21-0620	17-May-21	n/a	negative control	1668063	1578	19974	26
5	21-0618	17-May-21	n/a	negative control	1214835	974	19981	19
6	21-0622	17-May-21	n/a	negative control	966294	1487	19957	43
7	21-0619	17-May-21	EMS	positive control	1090905	1747	19790	210
8	21-0617	17-May-21	EMS	positive control	1111240	1514	19755	245
9	21-0621	17-May-21	EMS	positive control	2374035	1847	19719	281
10	21-0517	17-May-21	AvioGreen	500 mg/kg-d	1189969	1352	19958	42
11	21-0518	17-May-21	AvioGreen	500 mg/kg-d	1649790	1211	19978	22
12	21-0593	17-May-21	AvioGreen	1000 mg/kg-d	1474673	1137	19970	30
13	21-0594	17-May-21	AvioGreen	1000 mg/kg-d	1517622	1123	19977	23
14	21-0610	17-May-21	AvioGreen	2000 mg/kg-d	1074320	1608	19959	41
15	21-0533	18-May-21	AvioGreen	500 mg/kg-d	1163649	1191	19965	35
16	21-0534	18-May-21	AvioGreen	500 mg/kg-d	1103576	824	19976	24
17	21-0565	18-May-21	AvioGreen	2000 mg/kg-d	1223572	974	19973	27
18	21-0566	18-May-21	AvioGreen	2000 mg/kg-d	1275996	1154	19982	18
19	21-0605	18-May-21	AvioGreen	1000 mg/kg-d	1157722	719	19987	13
20	21-0606	18-May-21	AvioGreen	1000 mg/kg-d	1036454	1108	19972	28
21	21-0507	19-May-21	AvioGreen	2000 mg/kg-d	1332110	1188	19976	24
22	21-0508	19-May-21	AvioGreen	2000 mg/kg-d	1435547	1281	19965	35
23	21-0525	19-May-21	AvioGreen	1000 mg/kg-d	1413932	560	19982	18
24	21-0526	19-May-21	AvioGreen	1000 mg/kg-d	1148955	864	19979	21
25	21-0579	19-May-21	AvioGreen	500 mg/kg-d	1468227	1615	19969	31
26	21-0580	19-May-21	AvioGreen	500 mg/kg-d	1258993	1016	19981	19
27	21-0503	20-May-21	AvioGreen	2000 mg/kg-d	1322262	867	19985	15
28	21-0504	20-May-21	AvioGreen	2000 mg/kg-d	1112808	1231	19982	18
29	21-0521	20-May-21	AvioGreen	500 mg/kg-d	1683561	1238	19978	22
30	21-0522	20-May-21	AvioGreen	500 mg/kg-d	1171669	710	19979	21
31	21-0543	20-May-21	AvioGreen	1000 mg/kg-d	1067474	992	19980	20
32	21-0544	20-May-21	AvioGreen	1000 mg/kg-d	1166884	1249	19973	27
34	21-0502	21-May-21	AvioGreen	500 mg/kg-d	1562862	1055	19980	20
35	21-0599	21-May-21	AvioGreen	2000 mg/kg-d	1264916	1234	19980	20
36	21-0603	21-May-21	AvioGreen	1000 mg/kg-d	1691943	1449	19971	29
37	21-0604	21-May-21	AvioGreen	1000 mg/kg-d	1284124	818	19984	16
38	21-0620	24-May-21	EMS	positive control	1402944	1686	19877	123
39	21-0618	24-May-21	EMS	positive control	1784629	1628	19928	72
40	21-0622	24-May-21	EMS	positive control	743365	1306	19813	187

¹ NCE = normochromatic erythrocytes; ² MN-NCE = micronucleated normochromatic erythrocytes

³ RET = young (high CD71-positive) reticulocytes; ⁴ MN-RET = young (high CD71-positive) micronucleated reticulocytes

n/a = not applicable; EMS = ethyl methanesulfonate

Table 2: Individual Animal Blood Data – Raw Data – Samples 41 - 79

Unique #	Sample ID	Date Collected	Formulation	Dose	No. NCE ¹	No. MN-NCE ²	No. RET ³	No. MN-RET ⁴
41	21-0511	24-May-21	NRL 502W	2000 mg/kg-d	1043131	323	19990	10
42	21-0512	24-May-21	NRL 502W	2000 mg/kg-d	964558	1414	19970	30
43	21-0571	24-May-21	NRL 502W	500 mg/kg-d	1053690	977	19980	20
44	21-0572	24-May-21	NRL 502W	500 mg/kg-d	1157945	1042	19977	23
45	21-0585	24-May-21	NRL 502W	1000 mg/kg-d	891990	811	19973	27
46	21-0586	24-May-21	NRL 502W	1000 mg/kg-d	1084592	633	19975	25
47	21-0519	25-May-21	NRL 502W	2000 mg/kg-d	856455	1064	19953	47
48	21-0520	25-May-21	NRL 502W	2000 mg/kg-d	1276185	1191	19976	24
49	21-0527	25-May-21	NRL 502W	500 mg/kg-d	900183	660	19970	30
50	21-0528	25-May-21	NRL 502W	500 mg/kg-d	1126756	1019	19965	35
51	21-0613	25-May-21	NRL 502W	1000 mg/kg-d	1111184	1115	19969	31
52	21-0614	25-May-21	NRL 502W	1000 mg/kg-d	1523681	1559	19969	31
53	21-0499	26-May-21	NRL 502W	500 mg/kg-d	1095092	2391	19936	64
54	21-0500	26-May-21	NRL 502W	500 mg/kg-d	1463608	1471	19964	36
55	21-0561	26-May-21	NRL 502W	2000 mg/kg-d	1159950	703	19990	10
56	21-0562	26-May-21	NRL 502W	2000 mg/kg-d	1153551	1341	19964	36
57	21-0597	26-May-21	NRL 502W	1000 mg/kg-d	1170556	1520	19968	32
58	21-0598	26-May-21	NRL 502W	1000 mg/kg-d	2080074	1633	19983	17
59	21-0541	27-May-21	NRL 502W	500 mg/kg-d	961404	930	19975	25
60	21-0542	27-May-21	NRL 502W	500 mg/kg-d	962439	785	19983	17
61	21-0553	27-May-21	NRL 502W	1000 mg/kg-d	1217817	1035	19976	24
62	21-0554	27-May-21	NRL 502W	1000 mg/kg-d	889622	650	19977	23
63	21-0587	27-May-21	NRL 502W	2000 mg/kg-d	926863	990	19973	27
64	21-0588	27-May-21	NRL 502W	2000 mg/kg-d	966332	786	19983	17
65	21-0531	28-May-21	NRL 502W	2000 mg/kg-d	996386	771	19970	30
66	21-0532	28-May-21	NRL 502W	2000 mg/kg-d	909077	769	19978	22
67	21-0551	28-May-21	NRL 502W	500 mg/kg-d	1439850	1356	19975	25
68	21-0552	28-May-21	NRL 502W	500 mg/kg-d	926860	650	19980	20
69	21-0595	28-May-21	NRL 502W	1000 mg/kg-d	1461276	1055	19975	25
70	21-0596	28-May-21	NRL 502W	1000 mg/kg-d	1455720	1619	19972	28
71	21-0787	14-Jun-21	n/a	negative control	1346027	1447	19961	39
72	21-0791	14-Jun-21	n/a	negative control	1213512	958	19973	27
73	21-0863	14-Jun-21	n/a	negative control	935126	1154	19974	26
74	21-0788	21-Jun-21	n/a	negative control	1241682	972	19985	15
75	21-0792	21-Jun-21	n/a	negative control	975235	921	19977	23
76	21-0864	21-Jun-21	n/a	negative control	1471801	1480	19965	35
77	21-0787	21-Jun-21	EMS	positive control	2180999	2860	19803	197
78	21-0791	21-Jun-21	EMS	positive control	1174818	1035	19923	77
79	21-0863	21-Jun-21	EMS	positive control	1529216	1869	19908	92

¹ NCE = normochromatic erythrocytes; ² MN-NCE = micronucleated normochromatic erythrocytes³ RET = young (high CD71-positive) reticulocytes; ⁴ MN-RET = young (high CD71-positive) micronucleated reticulocytes

n/a = not applicable; EMS = ethyl methanesulfonate

Table 3: Individual Animal Blood Data – Raw Data – Samples 80 - 111

Unique #	Sample ID	Date Collected	Formulation	Dose	No. NCE ¹	No. MN-NCE ²	No. RET ³	No. MN-RET ⁴
80	21-0809	21-Jun-21	ReHealing	500 mg/kg-d	1075432	748	19980	20
81	21-0810	21-Jun-21	ReHealing	500 mg/kg-d	1037211	1445	19959	41
82	21-0819	21-Jun-21	ReHealing	1000 mg/kg-d	1263084	723	19985	15
83	21-0820	21-Jun-21	ReHealing	1000 mg/kg-d	1282384	841	19973	27
84	21-0831	21-Jun-21	ReHealing	2000 mg/kg-d	863409	798	19969	31
85	21-0832	21-Jun-21	ReHealing	2000 mg/kg-d	1102262	1171	19973	27
86	21-0777	22-Jun-21	ReHealing	500 mg/kg-d	1097503	1057	19972	28
87	21-0778	22-Jun-21	ReHealing	500 mg/kg-d	1094014	848	19974	26
88	21-0843	22-Jun-21	ReHealing	1000 mg/kg-d	936356	879	19970	30
89	21-0844	22-Jun-21	ReHealing	1000 mg/kg-d	984524	986	19983	17
90	21-0869	22-Jun-21	ReHealing	2000 mg/kg-d	3692396	2620	9976	24
91	21-0870	22-Jun-21	ReHealing	2000 mg/kg-d	1216789	922	19985	15
92	21-0759	23-Jun-21	ReHealing	500 mg/kg-d	1079637	1056	19965	35
93	21-0760	23-Jun-21	ReHealing	500 mg/kg-d	773687	934	19961	39
94	21-0790	23-Jun-21	ReHealing	2000 mg/kg-d	884399	658	19964	36
95	21-0871	23-Jun-21	ReHealing	1000 mg/kg-d	1000678	900	19980	20
96	21-0872	23-Jun-21	ReHealing	1000 mg/kg-d	933464	913	19973	27
98	21-0762	24-Jun-21	ReHealing	1000 mg/kg-d	952215	727	19980	20
99	21-0823	24-Jun-21	ReHealing	500 mg/kg-d	1215505	901	19984	16
100	21-0824	24-Jun-21	ReHealing	500 mg/kg-d	1237680	1024	19983	17
101	21-0835	24-Jun-21	ReHealing	2000 mg/kg-d	1082598	833	19977	23
102	21-0836	24-Jun-21	ReHealing	2000 mg/kg-d	851140	904	19980	20
103	21-0773	25-Jun-21	ReHealing	1000 mg/kg-d	732432	664	19977	23
104	21-0774	25-Jun-21	ReHealing	1000 mg/kg-d	791426	875	19971	29
105	21-0785	25-Jun-21	ReHealing	2000 mg/kg-d	702384	627	19966	34
106	21-0786	25-Jun-21	ReHealing	2000 mg/kg-d	1067210	915	19975	25
107	21-0799	25-Jun-21	ReHealing	500 mg/kg-d	1137967	1113	19978	22
108	21-0800	25-Jun-21	ReHealing	500 mg/kg-d	885097	634	19978	22
109	21-0788	28-Jun-21	EMS	positive control	1323831	1187	19926	74
110	21-0792	28-Jun-21	EMS	positive control	997336	981	19913	87
111	21-0864	28-Jun-21	EMS	positive control	2151025	2599	19803	197

¹ NCE = normochromatic erythrocytes; ² MN-NCE = micronucleated normochromatic erythrocytes

³ RET = young (high CD71-positive) reticulocytes; ⁴ MN-RET = young (high CD71-positive) micronucleated reticulocytes

EMS = ethyl methanesulfonate

Table 4: Individual Animal Blood Data – Raw Data – Samples 112 - 150

Unique #	Sample ID	Date Collected	Formulation	Dose	No. NCE ¹	No. MN-NCE ²	No. RET ³	No. MN-RET ⁴
112	21-0763	28-Jun-21	ECOPOL A	1000 mg/kg-d	1085973	559	19984	16
113	21-0764	28-Jun-21	ECOPOL A	1000 mg/kg-d	1010596	1111	19967	33
114	21-0767	28-Jun-21	ECOPOL A	500 mg/kg-d	1465282	1230	19978	22
115	21-0768	28-Jun-21	ECOPOL A	500 mg/kg-d	1212905	685	19984	16
116	21-0803	28-Jun-21	ECOPOL A	2000 mg/kg-d	1112959	1094	19982	18
117	21-0804	28-Jun-21	ECOPOL A	2000 mg/kg-d	1473186	1423	19974	26
119	21-0794	29-Jun-21	ECOPOL A	1000 mg/kg-d	2166784	2438	19975	25
120	21-0845	29-Jun-21	ECOPOL A	500 mg/kg-d	1218559	1107	19968	32
121	21-0846	29-Jun-21	ECOPOL A	500 mg/kg-d	996149	604	19970	30
122	21-0861	29-Jun-21	ECOPOL A	2000 mg/kg-d	1184842	1070	19972	28
123	21-0862	29-Jun-21	ECOPOL A	2000 mg/kg-d	1423130	1466	19973	27
124	21-0757	30-Jun-21	ECOPOL A	1000 mg/kg-d	1038352	499	19986	14
125	21-0758	30-Jun-21	ECOPOL A	1000 mg/kg-d	1164807	746	19984	16
126	21-0811	30-Jun-21	ECOPOL A	500 mg/kg-d	1664250	1921	19969	31
127	21-0812	30-Jun-21	ECOPOL A	500 mg/kg-d	1370009	826	19972	28
128	21-0853	30-Jun-21	ECOPOL A	2000 mg/kg-d	1224731	759	19977	23
129	21-0854	30-Jun-21	ECOPOL A	2000 mg/kg-d	1128560	731	19982	18
130	21-0781	1-Jul-21	ECOPOL A	1000 mg/kg-d	1256714	1303	19977	23
131	21-0782	1-Jul-21	ECOPOL A	1000 mg/kg-d	1090634	832	19978	22
132	21-0839	1-Jul-21	ECOPOL A	2000 mg/kg-d	1130093	801	19980	20
133	21-0840	1-Jul-21	ECOPOL A	2000 mg/kg-d	872350	921	19976	24
134	21-0867	1-Jul-21	ECOPOL A	500 mg/kg-d	1121317	970	19974	26
135	21-0868	1-Jul-21	ECOPOL A	500 mg/kg-d	1191031	829	19973	27
136	21-0795	2-Jul-21	ECOPOL A	1000 mg/kg-d	1100517	779	19985	15
137	21-0796	2-Jul-21	ECOPOL A	1000 mg/kg-d	922620	583	19991	9
138	21-0801	2-Jul-21	ECOPOL A	500 mg/kg-d	1043947	534	19983	17
139	21-0802	2-Jul-21	ECOPOL A	500 mg/kg-d	930642	1236	19963	37
141	21-0850	2-Jul-21	ECOPOL A	2000 mg/kg-d	896286	543	19983	17
142	21-0911	2-Jul-21	n/a	negative control	1110305	929	19976	24
143	21-0912	2-Jul-21	n/a	negative control	1004265	861	19978	22
144	21-0957	2-Jul-21	n/a	negative control	684347	742	19974	26
145	21-0958	12-Jul-21	n/a	negative control	991402	756	19982	18
146	21-0999	12-Jul-21	n/a	negative control	1087989	690	19984	16
147	21-1000	12-Jul-21	n/a	negative control	1028130	771	19984	16
148	21-0911	12-Jul-21	EMS	positive control	1433729	1258	19869	131
149	21-0912	12-Jul-21	EMS	positive control	1207016	1063	19890	110
150	21-0957	12-Jul-21	EMS	positive control	844733	999	19883	117

¹ NCE = normochromatic erythrocytes; ² MN-NCE = micronucleated normochromatic erythrocytes

³ RET = young (high CD71-positive) reticulocytes; ⁴ MN-RET = young (high CD71-positive) micronucleated reticulocytes

n/a = not applicable; EMS = ethyl methanesulfonate

Table 5: Individual Animal Blood Data – Raw Data – Samples 151 - 183

Unique #	Sample ID	Date Collected	Formulation	Dose	No. NCE ¹	No. MN-NCE ²	No. RET ³	No. MN-RET ⁴
151	21-0889	12-Jul-21	Enviro	1000 mg/kg-d	1231038	809	19982	18
152	21-0890	12-Jul-21	Enviro	1000 mg/kg-d	996297	653	19982	18
153	21-0897	12-Jul-21	Enviro	500 mg/kg-d	970791	790	19981	19
154	21-0898	12-Jul-21	Enviro	500 mg/kg-d	932643	841	19980	20
155	21-0967	12-Jul-21	Enviro	2000 mg/kg-d	1073700	1034	19972	28
156	21-0968	12-Jul-21	Enviro	2000 mg/kg-d	884683	566	19986	14
157	21-0905	13-Jul-21	Enviro	1000 mg/kg-d	1033178	1046	19969	31
158	21-0906	13-Jul-21	Enviro	1000 mg/kg-d	1229749	1238	19967	33
159	21-0969	13-Jul-21	Enviro	500 mg/kg-d	941078	851	19972	28
160	21-0970	13-Jul-21	Enviro	500 mg/kg-d	927510	829	19975	25
161	21-0977	13-Jul-21	Enviro	2000 mg/kg-d	1366727	946	19988	12
162	21-0978	13-Jul-21	Enviro	2000 mg/kg-d	1361408	1218	19974	26
163	21-0909	14-Jul-21	Enviro	2000 mg/kg-d	524261	678	19949	51
164	21-0910	14-Jul-21	Enviro	2000 mg/kg-d	1976545	2000	19973	27
165	21-0945	14-Jul-21	Enviro	1000 mg/kg-d	1011324	908	19975	25
166	21-0946	14-Jul-21	Enviro	1000 mg/kg-d	1071078	734	19979	21
167	21-0947	14-Jul-21	Enviro	500 mg/kg-d	1171537	1019	19983	17
168	21-0948	14-Jul-21	Enviro	500 mg/kg-d	988142	874	19976	24
169	21-0887	15-Jul-21	Enviro	1000 mg/kg-d	856190	756	19975	25
170	21-0888	15-Jul-21	Enviro	1000 mg/kg-d	1129858	669	19989	11
171	21-0943	15-Jul-21	Enviro	2000 mg/kg-d	1012853	652	19978	22
172	21-0944	15-Jul-21	Enviro	2000 mg/kg-d	900770	685	19984	16
173	21-0979	15-Jul-21	Enviro	500 mg/kg-d	1024315	846	19981	19
175	21-0923	16-Jul-21	Enviro	1000 mg/kg-d	1021079	1096	19975	25
176	21-0924	16-Jul-21	Enviro	1000 mg/kg-d	794964	671	19972	28
177	21-0925	16-Jul-21	Enviro	2000 mg/kg-d	719363	530	19983	17
178	21-0926	16-Jul-21	Enviro	2000 mg/kg-d	965448	1049	19963	37
179	21-0951	16-Jul-21	Enviro	500 mg/kg-d	1018264	878	19981	19
180	21-0952	16-Jul-21	Enviro	500 mg/kg-d	907879	1053	19967	33
181	21-0958	19-Jul-21	EMS	positive control	709875	511	19918	82
182	21-0999	19-Jul-21	EMS	positive control	748812	662	19900	100
183	21-1000	19-Jul-21	EMS	positive control	797598	721	19821	179

¹ NCE = normochromatic erythrocytes; ² MN-NCE = micronucleated normochromatic erythrocytes

³ RET = young (high CD71-positive) reticulocytes; ⁴ MN-RET = young (high CD71-positive) micronucleated reticulocytes

EMS = ethyl methanesulfonate

Table 6: Individual Animal Blood Data – Raw Data – Samples 184 – 219

Unique #	Sample ID	Date Collected	Formulation	Dose	No. NCE ¹	No. MN-NCE ²	No. RET ³	No. MN-RET ⁴
184	21-0903	19-Jul-21	20-391	1000 mg/kg-d	732560	554	19981	19
185	21-0904	19-Jul-21	20-391	1000 mg/kg-d	1308968	1132	19985	15
186	21-0961	19-Jul-21	20-391	500 mg/kg-d	912429	1154	19958	42
187	21-0962	19-Jul-21	20-391	500 mg/kg-d	981171	925	19976	24
188	21-0989	19-Jul-21	20-391	2000 mg/kg-d	845459	514	19980	20
189	21-0990	19-Jul-21	20-391	2000 mg/kg-d	1117157	864	19974	26
190	21-0893	20-Jul-21	20-391	500 mg/kg-d	859153	511	19981	19
191	21-0894	20-Jul-21	20-391	500 mg/kg-d	828564	731	19981	19
192	21-0973	20-Jul-21	20-391	2000 mg/kg-d	1188244	725	19985	15
193	21-0974	20-Jul-21	20-391	2000 mg/kg-d	850837	673	19977	23
194	21-0991	20-Jul-21	20-391	1000 mg/kg-d	1011014	868	19976	24
195	21-0992	20-Jul-21	20-391	1000 mg/kg-d	873381	511	19985	15
196	21-0895	21-Jul-21	20-391	1000 mg/kg-d	564026	344	19977	23
197	21-0896	21-Jul-21	20-391	1000 mg/kg-d	882578	646	19981	19
198	21-0931	21-Jul-21	20-391	2000 mg/kg-d	953527	688	19979	21
199	21-0932	21-Jul-21	20-391	2000 mg/kg-d	834430	643	19984	16
200	21-0993	21-Jul-21	20-391	500 mg/kg-d	953129	1079	19974	26
201	21-0994	21-Jul-21	20-391	500 mg/kg-d	1000621	923	19984	16
202	21-0891	22-Jul-21	20-391	500 mg/kg-d	853740	606	19976	24
203	21-0892	22-Jul-21	20-391	500 mg/kg-d	1105935	917	19988	12
204	21-0899	22-Jul-21	20-391	2000 mg/kg-d	763749	402	19988	12
205	21-0900	22-Jul-21	20-391	2000 mg/kg-d	1162269	1173	19973	27
206	21-0971	22-Jul-21	20-391	1000 mg/kg-d	1388061	1181	19985	15
207	21-0972	22-Jul-21	20-391	1000 mg/kg-d	842712	772	19978	22
208	21-0953	23-Jul-21	20-391	500 mg/kg-d	1029711	1040	19967	33
209	21-0954	23-Jul-21	20-391	500 mg/kg-d	1056130	1131	19954	46
210	21-0959	23-Jul-21	20-391	2000 mg/kg-d	1025689	730	19983	17
211	21-0960	23-Jul-21	20-391	2000 mg/kg-d	1020833	823	19973	27
212	21-1003	23-Jul-21	20-391	1000 mg/kg-d	1047302	562	19982	18
213	21-1004	23-Jul-21	20-391	1000 mg/kg-d	757832	509	19975	25
214	21-1403	13-Sep-21	n/a	negative control	1131561	1155	19980	20
215	21-1404	13-Sep-21	n/a	negative control	1473181	1279	19974	26
216	21-1427	13-Sep-21	n/a	negative control	1647614	1852	19959	41
217	21-1428	13-Sep-21	n/a	negative control	1039347	687	19978	22
218	21-1437	13-Sep-21	n/a	negative control	1389495	1393	19968	32
219	21-1438	13-Sep-21	n/a	negative control	968194	976	19966	34

¹ NCE = normochromatic erythrocytes; ² MN-NCE = micronucleated normochromatic erythrocytes³ RET = young (high CD71-positive) reticulocytes; ⁴ MN-RET = young (high CD71-positive) micronucleated reticulocytes

n/a = not applicable

Table 7: Individual Animal Blood Data – Raw Data – Samples 220 – 255

Unique #	Sample ID	Date Collected	Formulation	Dose	No. NCE ¹	No. MN-NCE ²	No. RET ³	No. MN-RET ⁴
220	21-1403	20-Sep-21	EMS	positive control	533714	602	19940	60
221	21-1404	20-Sep-21	EMS	positive control	1207114	1201	19870	130
222	21-1427	20-Sep-21	EMS	positive control	1290906	1816	19894	106
223	21-1428	20-Sep-21	EMS	positive control	466440	359	19891	109
224	21-1437	20-Sep-21	EMS	positive control	513778	540	19886	114
225	21-1438	20-Sep-21	EMS	positive control	610231	776	19786	214
226	21-1405	20-Sep-21	Buckeye	2000 mg/kg-d	1242502	1204	19975	25
227	21-1406	20-Sep-21	Buckeye	2000 mg/kg-d	867385	1067	19954	46
228	21-1409	20-Sep-21	Buckeye	500 mg/kg-d	1117626	964	19969	31
229	21-1410	20-Sep-21	Buckeye	500 mg/kg-d	1423020	1161	19977	23
230	21-1415	20-Sep-21	Buckeye	1000 mg/kg-d	1084084	961	19979	21
231	21-1416	20-Sep-21	Buckeye	1000 mg/kg-d	1019177	1000	19971	29
232	21-1379	21-Sep-21	Buckeye	1000 mg/kg-d	956474	1001	19965	35
233	21-1380	21-Sep-21	Buckeye	1000 mg/kg-d	1289842	822	19973	27
234	21-1407	21-Sep-21	Buckeye	2000 mg/kg-d	1143476	1037	19957	43
235	21-1408	21-Sep-21	Buckeye	2000 mg/kg-d	1381490	1579	19962	38
236	21-1421	21-Sep-21	Buckeye	500 mg/kg-d	1123563	1087	19961	39
237	21-1422	21-Sep-21	Buckeye	500 mg/kg-d	1028269	1188	19947	53
238	21-1413	22-Sep-21	Buckeye	500 mg/kg-d	817068	820	19974	26
239	21-1414	22-Sep-21	Buckeye	500 mg/kg-d	1133211	980	19971	29
240	21-1429	22-Sep-21	Buckeye	1000 mg/kg-d	1434797	1381	19960	40
241	21-1430	22-Sep-21	Buckeye	1000 mg/kg-d	1016319	1006	19971	29
242	21-1435	22-Sep-21	Buckeye	2000 mg/kg-d	887168	951	19971	29
243	21-1436	22-Sep-21	Buckeye	2000 mg/kg-d	827027	504	19980	20
244	21-1381	23-Sep-21	Buckeye	2000 mg/kg-d	857461	1274	19951	49
245	21-1382	23-Sep-21	Buckeye	2000 mg/kg-d	904613	771	19968	32
246	21-1393	23-Sep-21	Buckeye	500 mg/kg-d	1103483	1034	19977	23
247	21-1394	23-Sep-21	Buckeye	500 mg/kg-d	895209	804	19969	31
248	21-1423	23-Sep-21	Buckeye	1000 mg/kg-d	1049782	958	19977	23
249	21-1424	23-Sep-21	Buckeye	1000 mg/kg-d	768585	987	19967	33
250	21-1389	24-Sep-21	Buckeye	2000 mg/kg-d	1007293	635	19975	25
251	21-1390	24-Sep-21	Buckeye	2000 mg/kg-d	1067345	866	19972	28
252	21-1395	24-Sep-21	Buckeye	1000 mg/kg-d	951946	961	19968	32
253	21-1396	24-Sep-21	Buckeye	1000 mg/kg-d	1035133	1398	19973	27
254	21-1431	24-Sep-21	Buckeye	500 mg/kg-d	977863	1062	19971	29
255	21-1432	24-Sep-21	Buckeye	500 mg/kg-d	803798	928	19962	38

¹ NCE = normochromatic erythrocytes; ² MN-NCE = micronucleated normochromatic erythrocytes

³ RET = young (high CD71-positive) reticulocytes; ⁴ MN-RET = young (high CD71-positive) micronucleated reticulocytes

EMS = ethyl methanesulfonate

Table 8: Individual Animal Blood Data – Calculated Data – Samples 1 - 40

Unique #	Sample ID	Formulation	%RET ^a	%MN-RET ^b	% MN-NCE ^c
1	21-0619	n/a	1.93	0.20	0.15
2	21-0617	n/a	2.03	0.18	0.14
3	21-0621	n/a	1.90	0.11	0.08
4	21-0620	n/a	1.18	0.13	0.09
5	21-0618	n/a	1.62	0.10	0.08
6	21-0622	n/a	2.02	0.22	0.15
7	21-0619	EMS	1.80	1.05	0.16
8	21-0617	EMS	1.77	1.23	0.14
9	21-0621	EMS	0.83	1.41	0.08
10	21-0517	AvioGreen	1.65	0.21	0.11
11	21-0518	AvioGreen	1.20	0.11	0.07
12	21-0593	AvioGreen	1.34	0.15	0.08
13	21-0594	AvioGreen	1.30	0.12	0.07
14	21-0610	AvioGreen	1.82	0.21	0.15
15	21-0533	AvioGreen	1.69	0.18	0.10
16	21-0534	AvioGreen	1.78	0.12	0.07
17	21-0565	AvioGreen	1.61	0.14	0.08
18	21-0566	AvioGreen	1.54	0.09	0.09
19	21-0605	AvioGreen	1.70	0.07	0.06
20	21-0606	AvioGreen	1.89	0.14	0.11
21	21-0507	AvioGreen	1.48	0.12	0.09
22	21-0508	AvioGreen	1.37	0.18	0.09
23	21-0525	AvioGreen	1.39	0.09	0.04
24	21-0526	AvioGreen	1.71	0.11	0.08
25	21-0579	AvioGreen	1.34	0.16	0.11
26	21-0580	AvioGreen	1.56	0.10	0.08
27	21-0503	AvioGreen	1.49	0.08	0.07
28	21-0504	AvioGreen	1.76	0.09	0.11
29	21-0521	AvioGreen	1.17	0.11	0.07
30	21-0522	AvioGreen	1.68	0.11	0.06
31	21-0543	AvioGreen	1.84	0.10	0.09
32	21-0544	AvioGreen	1.68	0.14	0.11
34	21-0502	AvioGreen	1.26	0.10	0.07
35	21-0599	AvioGreen	1.56	0.10	0.10
36	21-0603	AvioGreen	1.17	0.15	0.09
37	21-0604	AvioGreen	1.53	0.08	0.06
38	21-0620	EMS	1.40	0.62	0.12
39	21-0618	EMS	1.11	0.36	0.09
40	21-0622	EMS	2.62	0.94	0.18

^a % RET = frequency (%) of young (high CD71-positive) reticulocytes; calculated as [(Number of RET + Number of MN-RET) / (Number of NCE + Number of MN-NCE + Number of RET + Number of MN-RET)] x 100

^b % MN-RET = frequency (%) of young (high CD71-positive) micronucleated reticulocytes; calculated as [Number of MN-RET / (Number of RET + Number of MN-RET)] x 100; EMS = ethyl methanesulfonate

Table 9: Individual Animal Blood Data – Calculated Data – Samples 41 - 79

Unique #	Sample ID	Formulation	%RET ^a	%MN-RET ^b	% MN-NCE ^c
41	21-0511	NRL 502W	1.88	0.05	0.03
42	21-0512	NRL 502W	2.03	0.15	0.15
43	21-0571	NRL 502W	1.86	0.10	0.09
44	21-0572	NRL 502W	1.70	0.12	0.09
45	21-0585	NRL 502W	2.19	0.14	0.09
46	21-0586	NRL 502W	1.81	0.13	0.06
47	21-0519	NRL 502W	2.28	0.24	0.12
48	21-0520	NRL 502W	1.54	0.12	0.09
49	21-0527	NRL 502W	2.17	0.15	0.07
50	21-0528	NRL 502W	1.74	0.18	0.09
51	21-0613	NRL 502W	1.77	0.16	0.10
52	21-0614	NRL 502W	1.29	0.16	0.10
53	21-0499	NRL 502W	1.79	0.32	0.22
54	21-0500	NRL 502W	1.35	0.18	0.10
55	21-0561	NRL 502W	1.69	0.05	0.06
56	21-0562	NRL 502W	1.70	0.18	0.12
57	21-0597	NRL 502W	1.68	0.16	0.13
58	21-0598	NRL 502W	0.95	0.09	0.08
59	21-0541	NRL 502W	2.04	0.13	0.10
60	21-0542	NRL 502W	2.03	0.09	0.08
61	21-0553	NRL 502W	1.61	0.12	0.08
62	21-0554	NRL 502W	2.20	0.12	0.07
63	21-0587	NRL 502W	2.11	0.14	0.11
64	21-0588	NRL 502W	2.03	0.09	0.08
65	21-0531	NRL 502W	1.97	0.15	0.08
66	21-0532	NRL 502W	2.15	0.11	0.08
67	21-0551	NRL 502W	1.37	0.13	0.09
68	21-0552	NRL 502W	2.11	0.10	0.07
69	21-0595	NRL 502W	1.35	0.13	0.07
70	21-0596	NRL 502W	1.35	0.14	0.11
71	21-0787	n/a	1.46	0.20	0.11
72	21-0791	n/a	1.62	0.14	0.08
73	21-0863	n/a	2.09	0.13	0.12
74	21-0788	n/a	1.58	0.08	0.08
75	21-0792	n/a	2.01	0.12	0.09
76	21-0864	n/a	1.34	0.18	0.10
77	21-0787	EMS	0.91	0.99	0.13
78	21-0791	EMS	1.67	0.39	0.09
79	21-0863	EMS	1.29	0.46	0.12

^a % RET = frequency (%) of young (high CD71-positive) reticulocytes; calculated as [(Number of RET + Number of MN-RET)/ (Number of NCE + Number of MN-NCE + Number of RET + Number of MN-RET)] x 100

^b % MN-RET = frequency (%) of young (high CD71-positive) micronucleated reticulocytes; calculated as [Number of MN-RET/(Number of RET + Number of MN-RET)] x 100; n/a = not applicable; EMS = ethyl methanesulfonate

Table 10: Individual Animal Blood Data – Calculated Data – Samples 80 - 111

Unique #	Sample ID	Formulation	%RET ^a	%MN-RET ^b	% MN-NCE ^c
80	21-0809	ReHealing	1.82	0.10	0.07
81	21-0810	ReHealing	1.89	0.21	0.14
82	21-0819	ReHealing	1.56	0.08	0.06
83	21-0820	ReHealing	1.53	0.14	0.07
84	21-0831	ReHealing	2.26	0.16	0.09
85	21-0832	ReHealing	1.78	0.14	0.11
86	21-0777	ReHealing	1.79	0.14	0.10
87	21-0778	ReHealing	1.79	0.13	0.08
88	21-0843	ReHealing	2.09	0.15	0.09
89	21-0844	ReHealing	1.99	0.09	0.10
90	21-0869	ReHealing	0.27	0.24	0.07
91	21-0870	ReHealing	1.62	0.08	0.08
92	21-0759	ReHealing	1.82	0.18	0.10
93	21-0760	ReHealing	2.52	0.20	0.12
94	21-0790	ReHealing	2.21	0.18	0.07
95	21-0871	ReHealing	1.96	0.10	0.09
96	21-0872	ReHealing	2.10	0.14	0.10
98	21-0762	ReHealing	2.06	0.10	0.08
99	21-0823	ReHealing	1.62	0.08	0.07
100	21-0824	ReHealing	1.59	0.09	0.08
101	21-0835	ReHealing	1.81	0.12	0.08
102	21-0836	ReHealing	2.29	0.10	0.11
103	21-0773	ReHealing	2.66	0.12	0.09
104	21-0774	ReHealing	2.46	0.15	0.11
105	21-0785	ReHealing	2.77	0.17	0.09
106	21-0786	ReHealing	1.84	0.13	0.09
107	21-0799	ReHealing	1.73	0.11	0.10
108	21-0800	ReHealing	2.21	0.11	0.07
109	21-0788	EMS	1.49	0.37	0.09
110	21-0792	EMS	1.96	0.44	0.10
111	21-0864	EMS	0.92	0.99	0.12

^a % RET = frequency (%) of young (high CD71-positive) reticulocytes; calculated as [(Number of RET + Number of MN-RET) / (Number of NCE + Number of MN-NCE + Number of RET + Number of MN-RET)] x 100

^b % MN-RET = frequency (%) of young (high CD71-positive) micronucleated reticulocytes; calculated as [Number of MN-RET / (Number of RET + Number of MN-RET)] x 100; EMS = ethyl methanesulfonate

Table 11: Individual Animal Blood Data – Calculated Data – Samples 112 - 150

Unique #	Sample ID	Formulation	%RET ^a	%MN-RET ^b	% MN-NCE ^c
112	21-0763	ECOPOL A	1.81	0.08	0.05
113	21-0764	ECOPOL A	1.94	0.17	0.11
114	21-0767	ECOPOL A	1.35	0.11	0.08
115	21-0768	ECOPOL A	1.62	0.08	0.06
116	21-0803	ECOPOL A	1.76	0.09	0.10
117	21-0804	ECOPOL A	1.34	0.13	0.10
119	21-0794	ECOPOL A	0.91	0.13	0.11
120	21-0845	ECOPOL A	1.61	0.16	0.09
121	21-0846	ECOPOL A	1.97	0.15	0.06
122	21-0861	ECOPOL A	1.66	0.14	0.09
123	21-0862	ECOPOL A	1.38	0.14	0.10
124	21-0757	ECOPOL A	1.89	0.07	0.05
125	21-0758	ECOPOL A	1.69	0.08	0.06
126	21-0811	ECOPOL A	1.19	0.16	0.12
127	21-0812	ECOPOL A	1.44	0.14	0.06
128	21-0853	ECOPOL A	1.61	0.12	0.06
129	21-0854	ECOPOL A	1.74	0.09	0.06
130	21-0781	ECOPOL A	1.56	0.12	0.10
131	21-0782	ECOPOL A	1.80	0.11	0.08
132	21-0839	ECOPOL A	1.74	0.10	0.07
133	21-0840	ECOPOL A	2.24	0.12	0.11
134	21-0867	ECOPOL A	1.75	0.13	0.09
135	21-0868	ECOPOL A	1.65	0.14	0.07
136	21-0795	ECOPOL A	1.78	0.08	0.07
137	21-0796	ECOPOL A	2.12	0.05	0.06
138	21-0801	ECOPOL A	1.88	0.09	0.05
139	21-0802	ECOPOL A	2.10	0.19	0.13
141	21-0850	ECOPOL A	2.18	0.09	0.06
142	21-0911	n/a	1.77	0.12	0.08
143	21-0912	n/a	1.95	0.11	0.09
144	21-0957	n/a	2.84	0.13	0.11
145	21-0958	n/a	1.98	0.09	0.08
146	21-0999	n/a	1.80	0.08	0.06
147	21-1000	n/a	1.91	0.08	0.07
148	21-0911	EMS	1.37	0.66	0.09
149	21-0912	EMS	1.63	0.55	0.09
150	21-0957	EMS	2.31	0.59	0.12

^a % RET = frequency (%) of young (high CD71-positive) reticulocytes; calculated as [(Number of RET + Number of MN-RET)/ (Number of NCE + Number of MN-NCE + Number of RET + Number of MN-RET)] x 100

^b % MN-RET = frequency (%) of young (high CD71-positive) micronucleated reticulocytes; calculated as [Number of MN-RET/(Number of RET + Number of MN-RET)] x 100; n/a = not applicable; EMS = ethyl methanesulfonate

Table 12: Individual Animal Blood Data – Calculated Data – Samples 151 - 183

Unique #	Sample ID	Formulation	%RET ^a	%MN-RET ^b	% MN-NCE ^c
151	21-0889	Enviro	1.60	0.09	0.07
152	21-0890	Enviro	1.97	0.09	0.07
153	21-0897	Enviro	2.02	0.10	0.08
154	21-0898	Enviro	2.10	0.10	0.09
155	21-0967	Enviro	1.83	0.14	0.10
156	21-0968	Enviro	2.21	0.07	0.06
157	21-0905	Enviro	1.90	0.16	0.10
158	21-0906	Enviro	1.60	0.17	0.10
159	21-0969	Enviro	2.08	0.14	0.09
160	21-0970	Enviro	2.11	0.13	0.09
161	21-0977	Enviro	1.44	0.06	0.07
162	21-0978	Enviro	1.45	0.13	0.09
163	21-0909	Enviro	3.67	0.26	0.13
164	21-0910	Enviro	1.00	0.14	0.10
165	21-0945	Enviro	1.94	0.13	0.09
166	21-0946	Enviro	1.83	0.11	0.07
167	21-0947	Enviro	1.68	0.09	0.09
168	21-0948	Enviro	1.98	0.12	0.09
169	21-0887	Enviro	2.28	0.13	0.09
170	21-0888	Enviro	1.74	0.06	0.06
171	21-0943	Enviro	1.94	0.11	0.06
172	21-0944	Enviro	2.17	0.08	0.08
173	21-0979	Enviro	1.91	0.10	0.08
175	21-0923	Enviro	1.92	0.13	0.11
176	21-0924	Enviro	2.45	0.14	0.08
177	21-0925	Enviro	2.70	0.09	0.07
178	21-0926	Enviro	2.03	0.19	0.11
179	21-0951	Enviro	1.92	0.10	0.09
180	21-0952	Enviro	2.15	0.17	0.12
181	21-0958	EMS	2.74	0.41	0.07
182	21-0999	EMS	2.60	0.50	0.09
183	21-1000	EMS	2.44	0.90	0.09

^a % RET = frequency (%) of young (high CD71-positive) reticulocytes; calculated as [(Number of RET + Number of MN-RET)/ (Number of NCE + Number of MN-NCE + Number of RET + Number of MN-RET)] x 100

^b % MN-RET = frequency (%) of young (high CD71-positive) micronucleated reticulocytes; calculated as [Number of MN-RET/(Number of RET + Number of MN-RET)] x 100; EMS = ethyl methanesulfonate

Table 13: Individual Animal Blood Data – Calculated Data – Samples 184 - 219

Unique #	Sample ID	Formulation	%RET ^a	%MN-RET ^b	% MN-NCE ^c
184	21-0903	20-391	2.66	0.10	0.08
185	21-0904	20-391	1.50	0.08	0.09
186	21-0961	20-391	2.14	0.21	0.13
187	21-0962	20-391	2.00	0.12	0.09
188	21-0989	20-391	2.31	0.10	0.06
189	21-0990	20-391	1.76	0.13	0.08
190	21-0893	20-391	2.27	0.10	0.06
191	21-0894	20-391	2.35	0.10	0.09
192	21-0973	20-391	1.65	0.08	0.06
193	21-0974	20-391	2.29	0.12	0.08
194	21-0991	20-391	1.94	0.12	0.09
195	21-0992	20-391	2.24	0.08	0.06
196	21-0895	20-391	3.42	0.12	0.06
197	21-0896	20-391	2.21	0.10	0.07
198	21-0931	20-391	2.05	0.11	0.07
199	21-0932	20-391	2.34	0.08	0.08
200	21-0993	20-391	2.05	0.13	0.11
201	21-0994	20-391	1.96	0.08	0.09
202	21-0891	20-391	2.29	0.12	0.07
203	21-0892	20-391	1.77	0.06	0.08
204	21-0899	20-391	2.55	0.06	0.05
205	21-0900	20-391	1.69	0.14	0.10
206	21-0971	20-391	1.42	0.08	0.09
207	21-0972	20-391	2.32	0.11	0.09
208	21-0953	20-391	1.90	0.17	0.10
209	21-0954	20-391	1.86	0.23	0.11
210	21-0959	20-391	1.91	0.09	0.07
211	21-0960	20-391	1.92	0.14	0.08
212	21-1003	20-391	1.87	0.09	0.05
213	21-1004	20-391	2.57	0.13	0.07
214	21-1403	n/a	1.74	0.10	0.10
215	21-1404	n/a	1.34	0.13	0.09
216	21-1427	n/a	1.20	0.21	0.11
217	21-1428	n/a	1.89	0.11	0.07

^a % RET = frequency (%) of young (high CD71-positive) reticulocytes; calculated as [(Number of RET + Number of MN-RET)/ (Number of NCE + Number of MN-NCE + Number of RET + Number of MN-RET)] x 100

^b % MN-RET = frequency (%) of young (high CD71-positive) micronucleated reticulocytes; calculated as [Number of MN-RET/(Number of RET + Number of MN-RET)] x 100; n/a = not applicable

Table 14: Individual Animal Blood Data – Calculated Data – Samples 220 - 255

Unique #	Sample ID	Formulation	%RET ^a	%MN-RET ^b	% MN-NCE ^c
220	21-1403	EMS	3.61	0.30	0.11
221	21-1404	EMS	1.63	0.65	0.10
222	21-1427	EMS	1.52	0.53	0.14
223	21-1428	EMS	4.11	0.55	0.08
224	21-1437	EMS	3.74	0.57	0.11
225	21-1438	EMS	3.17	1.07	0.13
226	21-1405	Buckeye	1.58	0.13	0.10
227	21-1406	Buckeye	2.25	0.23	0.12
228	21-1409	Buckeye	1.76	0.16	0.09
229	21-1410	Buckeye	1.38	0.12	0.08
230	21-1415	Buckeye	1.81	0.11	0.09
231	21-1416	Buckeye	1.92	0.15	0.10
232	21-1379	Buckeye	2.05	0.18	0.10
233	21-1380	Buckeye	1.53	0.14	0.06
234	21-1407	Buckeye	1.72	0.22	0.09
235	21-1408	Buckeye	1.43	0.19	0.11
236	21-1421	Buckeye	1.75	0.20	0.10
237	21-1422	Buckeye	1.91	0.27	0.12
238	21-1413	Buckeye	2.39	0.13	0.10
239	21-1414	Buckeye	1.73	0.15	0.09
240	21-1429	Buckeye	1.37	0.20	0.10
241	21-1430	Buckeye	1.93	0.15	0.10
242	21-1435	Buckeye	2.20	0.15	0.11
243	21-1436	Buckeye	2.36	0.10	0.06
244	21-1381	Buckeye	2.28	0.25	0.15
245	21-1382	Buckeye	2.16	0.16	0.09
246	21-1393	Buckeye	1.78	0.12	0.09
247	21-1394	Buckeye	2.18	0.16	0.09
248	21-1423	Buckeye	1.87	0.12	0.09
249	21-1424	Buckeye	2.53	0.17	0.13
250	21-1389	Buckeye	1.95	0.13	0.06
251	21-1390	Buckeye	1.84	0.14	0.08
252	21-1395	Buckeye	2.06	0.16	0.10
253	21-1396	Buckeye	1.89	0.14	0.14
254	21-1431	Buckeye	2.00	0.15	0.11
255	21-1432	Buckeye	2.43	0.19	0.12

^a % RET = frequency (%) of young (high CD71-positive) reticulocytes; calculated as [(Number of RET + Number of MN-RET) / (Number of NCE + Number of MN-NCE + Number of RET + Number of MN-RET)] x 100

^b % MN-RET = frequency (%) of young (high CD71-positive) micronucleated reticulocytes; calculated as [Number of MN-RET / (Number of RET + Number of MN-RET)] x 100; EMS = ethyl methanesulfonate

Appendix F

Raw Data

Table F-1. Body Weights (g) from Acute Toxicity Tests

Product	Sex	Animal	Dosed	Day1	Day2	Day3	Day4	Day5	Day6	Day7	Day8	Day9	Day10	Day11	Day12	Day13	Day14	Day15
Avio Green	M	21-0248	3/2/2021	35.7	36.4	36.2	35.8	35.7	35.9	35.8	36.1	36.6	36.3	36.8	36.0	36.4	36.4	36.7
Avio Green	M	21-0249	3/2/2021	38.8	37.8	38.3	38.3	38.8	39.1	38.9	39.7	38.5	39.1	39.3	39.4	39.7	39.4	40.0
Avio Green	M	21-0250	3/2/2021	38.6	38.3	38.6	38.2	37.9	38.3	38.2	39.0	38.4	39.5	38.8	39.1	39.1	39.5	39.4
Avio Green	M	21-0235	3/3/2021	37.0	36.2	36.2	35.5	36.1	35.6	36.3	35.8	35.8	35.6	35.3	36.9	37.0	36.4	36.9
Avio Green	M	21-0236	3/3/2021	33.8	33.8	33.8	33.9	34.1	33.9	34.0	33.9	34.5	34.2	33.9	34.7	34.5	34.6	35.2
Avio Green	F	21-0368	3/2/2021	28.7	28.9	30.1	29.9	29.1	28.6	29.8	30.4	30.1	29.5	31.1	31.8	31.3	30.8	31.2
Avio Green	F	21-0369	3/2/2021	26.1	27.0	27.2	26.9	27.1	26.9	26.9	26.8	27.0	27.9	28.0	29.8	29.0	29.5	30.4
Avio Green	F	21-0370	3/2/2021	28.3	29.3	28.5	27.9	28.1	28.7	28.4	28.8	29.8	30.3	30.2	29.5	31.2	30.1	31.2
Avio Green	F	21-0315	3/3/2021	29.2	30.5	30.5	30.9	30.3	30.8	31.0	31.9	32.1	32.0	32.9	33.9	34.1	33.9	33.1
Avio Green	F	21-0316	3/3/2021	26.3	27.6	28.1	27.1	26.6	27.7	29.0	27.2	27.5	28.4	28.3	28.0	28.0	28.3	29.2
Buckeye	M	21-0275	3/2/2021	34.0	35.1	35.5	35.4	35.4	36.4	36.1	36.8	36.5	36.0	37.1	37.4	37.1	37.1	37.5
Buckeye	M	21-0276	3/2/2021	34.7	34.6	34.7	34.5	34.3	35.0	35.2	35.4	35.1	35.5	35.8	35.7	36.2	35.7	35.9
Buckeye	M	21-0277	3/2/2021	35.9	36.5	36.8	37.3	37.4	36.2	37.4	38.0	37.4	37.4	37.9	38.0	37.8	37.9	38.3
Buckeye	M	21-0265	3/3/2021	36.9	37.8	38.0	37.9	38.3	37.9	39.0	39.0	38.4	38.5	38.3	38.7	38.9	39.3	39.1
Buckeye	M	21-0266	3/3/2021	40.2	41.0	41.5	41.7	42.7	41.8	42.1	41.7	42.3	42.1	41.9	41.9	42.3	43.1	43.7
Buckeye	F	21-0383	3/2/2021	29.9	30.6	31.6	32.8	32.7	33.8	33.8	34.6	34.7	34.5	33.4	32.5	31.4	31.6	31.3
Buckeye	F	21-0384	3/2/2021	27.1	25.5	26.3	26.0	26.1	25.4	25.6	26.0	26.3	26.0	25.8	27.0	27.6	27.8	27.6
Buckeye	F	21-0385	3/2/2021	30.3	30.7	32.7	32.9	33.6	34.9	35.2	35.0	34.7	33.5	32.8	33.8	35.0	35.4	36.0
Buckeye	F	21-0347	3/3/2021	25.3	25.5	25.2	26.2	26.8	26.0	26.5	27.1	27.2	26.9	27.0	27.8	27.8	27.6	28.4
Buckeye	F	21-0348	3/3/2021	27.6	28.5	27.9	27.9	28.9	28.9	28.3	28.1	28.6	28.4	28.2	28.3	28.9	28.8	28.5
ECOPOL A	M	21-0260	3/2/2021	35.8	36.4	36.7	35.9	36.7	35.8	36.5	37.3	37.9	36.6	36.7	37.1	37.7	37.3	38.4
ECOPOL A	M	21-0261	3/2/2021	36.6	36.9	37.1	36.6	36.7	36.6	36.8	37.3	36.5	37.3	36.7	37.0	36.6	37.3	37.3
ECOPOL A	M	21-0262	3/2/2021	33.9	34.1	34.7	34.5	34.0	33.9	33.8	34.1	34.2	34.7	34.1	34.5	34.8	34.8	34.3

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ECOPOL A	M	21-0243	3/3/2021	38.5	41.1	40.2	39.0	39.3	39.6	39.2	39.7	39.7	40.3	40.5	40.3	40.7	40.4	41.6
ECOPOL A	M	21-0244	3/3/2021	35.7	38.6	38.3	37.7	38.5	37.9	38.4	39.0	38.5	39.6	39.9	40.0	40.4	39.3	39.9
ECOPOL A	F	21-0365	3/2/2021	28.1	28.7	29.1	29.1	29.7	30.4	31.0	32.2	32.5	33.3	33.8	32.3	30.6	30.7	32.2
ECOPOL A	F	21-0366	3/2/2021	27.5	26.7	26.8	27.3	28.0	27.4	27.0	27.6	27.8	29.1	29.3	28.9	28.3	28.7	29.7
ECOPOL A	F	21-0367	3/2/2021	29.0	29.2	30.4	31.7	32.0	32.0	33.2	34.3	33.6	32.8	31.6	31.5	31.8	33.9	35.0
ECOPOL A	F	21-0351	3/3/2021	28.1	28.8	29.4	28.1	28.2	28.4	30.0	29.1	29.8	30.4	29.9	29.7	29.4	30.0	29.8
ECOPOL A	F	21-0352	3/3/2021	28.5	28.1	28.0	28.4	28.9	28.8	28.2	29.5	29.9	29.3	28.9	29.5	30.6	30.2	30.0
Enviro USP	M	21-0281	3/3/2021	37.5	38.4	38.3	38.3	37.7	38.3	38.4	38.7	38.7	39.1	39.0	39.0	39.4	39.7	40.4
Enviro USP	M	21-0282	3/3/2021	34.3	34.6	34.6	34.5	34.7	34.5	35.6	35.3	35.2	35.4	35.4	36.0	35.7	36.2	36.3
Enviro USP	M	21-0283	3/3/2021	35.0	35.6	35.7	36.0	35.9	36.5	36.5	36.3	37.1	35.9	37.1	37.4	37.2	38.3	38.4
Enviro USP	M	21-0269	3/4/2021	39.4	39.4	39.1	39.7	40.0	40.1	40.3	41.3	40.3	40.7	41.1	41.4	41.4	41.5	42.1
Enviro USP	M	21-0270	3/4/2021	35.0	34.7	34.6	34.4	35.0	35.5	35.0	35.8	34.7	34.7	35.7	36.3	36.6	36.9	37.2
Enviro USP	F	21-0374	3/3/2021	27.4	27.6	25.5	25.7	27.5	28.4	28.6	29.6	30.4	30.6	30.5	29.1	26.5	27.5	28.5
Enviro USP	F	21-0375	3/3/2021	28.8	29.7	29.6	29.2	30.1	28.8	29.4	29.3	28.7	29.3	29.9	30.4	29.1	29.1	29.8
Enviro USP	F	21-0376	3/3/2021	27.3	28.5	29.4	29.0	28.3	30.2	30.9	30.3	30.1	28.1	28.2	30.0	29.5	29.1	29.1
Enviro USP	F	21-0341	3/4/2021	30.3	30.9	31.1	31.0	31.2	31.0	30.9	31.5	32.1	32.2	32.5	32.8	33.6	33.8	33.7
Enviro USP	F	21-0342	3/4/2021	30.8	29.8	29.5	30.2	30.5	30.3	30.5	31.4	31.1	30.1	30.7	31.7	32.3	31.0	32.1
NFD 20-391	M	21-0125	2/3/2021	30.1	32.7	32.7	32.5	33.3	33.3	32.9	33.2	33.2	33.2	33.1	34.3	33.8	34.0	34.0
NFD 20-391	M	21-0126	2/3/2021	33.0	34.5	34.5	34.8	35.8	34.7	34.8	35.4	35.8	35.4	35.7	35.8	36.0	35.9	36.2
NFD 20-391	M	21-0127	2/3/2021	36.4	37.2	37.9	37.6	37.8	37.8	37.5	38.4	38.4	38.4	38.1	38.4	38.6	39.0	38.7
NFD 20-391	M	21-0071	2/4/2021	38.9	37.5	36.7	36.3	37.0	37.4	38.5	37.5	36.8	37.2	37.2	37.0	37.5	37.0	38.1
NFD 20-391	M	21-0072	2/4/2021	34.6	33.4	33.8	34.2	33.5	33.1	33.0	33.7	33.4	34.1	33.9	33.9	33.7	34.2	35.3
NFD 20-391	F	21-0209	2/3/2021	22.7	22.4	23.1	21.7	23.2	23.4	23.4	23.2	24.1	23.9	23.5	23.5	24.9	25.2	25.4
NFD 20-391	F	21-0210	2/3/2021	31.0	32.4	32.6	31.6	31.5	31.6	32.1	31.2	31.3	31.3	32.1	30.8	31.3	31.9	32.4
NFD 20-391	F	21-0211	2/3/2021	24.6	23.8	23.7	24.4	25.1	25.4	25.1	25.9	27.0	27.4	27.3	27.8	28.4	28.6	27.5

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NFD 20-391	F	21-0165	2/4/2021	24.8	25.6	25.5	25.1	25.5	26.1	25.0	25.8	25.8	26.5	26.5	26.4	27.2	27.4	27.4
NFD 20-391	F	21-0166	2/4/2021	25.2	26.1	26.4	26.2	25.8	27.1	27.1	27.0	26.9	27.5	27.5	28.5	27.1	27.7	28.3
NRL 502W	M	21-0098	2/3/2021	32.9	34.3	34.6	31.4	34.2	34.5	34.7	34.3	35.6	35.8	35.0	35.0	35.7	36.2	35.1
NRL 502W	M	21-0099	2/3/2021	36.7	40.0	39.7	39.1	39.1	40.1	39.6	40.1	40.1	41.0	41.2	41.6	41.1	41.8	41.9
NRL 502W	M	21-0100	2/3/2021	32.0	30.8	32.0	31.8	31.9	31.2	32.2	32.2	32.5	33.3	32.4	33.0	33.0	34.0	33.9
NRL 502W	M	21-0079	2/4/2021	35.5	36.8	36.9	36.4	36.8	37.1	36.9	37.3	37.3	37.7	37.3	37.9	38.0	37.9	38.2
NRL 502W	M	21-0080	2/4/2021	38.3	38.3	37.0	39.0	39.2	39.2	39.5	39.8	40.6	40.6	40.8	41.5	42.1	41.5	42.4
NRL 502W	F	21-0194	2/3/2021	27.4	28.4	28.4	27.8	28.0	28.8	28.4	29.0	29.3	29.2	29.4	29.8	30.1	29.9	29.0
NRL 502W	F	21-0195	2/3/2021	26.7	26.6	27.2	27.7	27.5	27.6	28.1	28.4	27.9	27.5	28.2	28.4	28.5	28.7	28.6
NRL 502W	F	21-0196	2/3/2021	23.7	24.1	24.1	24.5	25.4	26.0	26.7	26.7	27.3	27.1	26.3	24.9	25.5	25.7	25.9
NRL 502W	F	21-0167	2/4/2021	27.0	26.3	26.3	27.2	27.1	27.2	26.8	27.5	28.4	27.7	26.5	28.1	28.9	27.9	28.5
NRL 502W	F	21-0168	2/4/2021	26.3	27.3	26.0	25.9	26.4	26.8	26.6	26.1	27.0	27.9	25.8	25.9	27.0	27.4	26.5
Re-Healing	M	21-0293	3/3/2021	40.2	38.6	38.6	38.3	38.5	38.7	36.1	39.8	40.0	40.1	40.5	40.5	40.6	40.4	41.0
Re-Healing	M	21-0294	3/3/2021	35.3	36.0	35.9	36.6	35.8	36.3	37.1	36.9	37.2	37.7	36.8	37.0	37.1	37.2	37.2
Re-Healing	M	21-0295	3/3/2021	34.6	35.8	35.1	35.5	35.3	35.4	35.8	34.0	35.9	36.0	36.4	37.1	36.7	37.3	37.3
Re-Healing	M	21-0284	3/4/2021	37.4	38.0	37.7	37.8	37.6	38.3	37.8	38.9	38.6	38.5	38.5	38.3	39.0	38.6	38.9
Re-Healing	M	21-0285	3/4/2021	36.7	37.7	38.2	38.1	39.2	39.3	39.4	40.1	40.0	39.9	40.7	40.8	40.8	40.6	41.2
Re-Healing	F	21-0386	3/3/2021	28.8	29.9	30.0	30.2	29.0	29.1	30.3	30.1	31.3	29.8	30.5	31.3	32.0	32.5	33.3
Re-Healing	F	21-0387	3/3/2021	26.2	26.3	26.4	26.3	25.7	25.5	26.6	26.3	26.7	26.2	25.4	26.3	27.0	26.2	26.1
Re-Healing	F	21-0388	3/3/2021	29.2	29.1	29.7	29.7	29.3	29.7	30.9	31.1	31.9	33.2	32.5	33.0	33.5	32.5	31.6
Re-Healing	F	21-0311	3/4/2021	27.2	27.8	27.5	27.3	28.4	30.9	29.5	31.5	31.1	32.5	32.8	32.1	31.9	29.6	30.7
Re-Healing	F	21-0312	3/4/2021	28.0	28.1	29.0	29.0	29.9	30.2	31.0	31.7	31.8	32.8	33.0	33.6	34.5	32.2	30.4

Table F-2. Body Weights (g) from 28-day Test with Avio Green

Dose (mg/kg-d)	Sex	Animal	Day0	Day7	Day14	Day21	Day28
0	F	21-0651	30.6	30.2	31.0	30.4	35.0
0	F	21-0652	26.8	26.1	27.9	28.0	28.2
500	F	21-0725	30.1	28.9	27.5	28.7	30.9
500	F	21-0726	30.5	30.0	29.2	31.3	32.6
125	F	21-0661	27.1	27.3	27.4	28.0	29.2
125	F	21-0662	32.6	31.1	31.2	31.8	34.3
2,000	F	21-0655	27.7	29.4	28.1	27.6	27.9
2,000	F	21-0656	30.0	28.0	30.1	28.5	28.4
250	F	21-0659	30.1	30.8	30.5	30.4	30.9
250	F	21-0660	27.6	27.0	27.8	28.5	27.5
1,000	F	21-0629	28.4	25.8	28.1	28.1	30.7
1,000	F	21-0630	32.3	32.0	34.0	32.9	35.2
2,000	F	21-0657	29.1	29.5	32.1	30.0	30.3
2,000	F	21-0658	27.7	27.5	28.4	28.8	28.5
125	F	21-0681	26.8	27.6	28.6	27.1	28.3
125	F	21-0682	32.2	30.7	34.3	32.4	32.0
250	F	21-0675	28.8	28.5	28.6	30.4	31.0
250	F	21-0676	29.3	29.5	29.5	29.3	30.2
1,000	F	21-0741	27.8	26.5	28.1	28.4	28.3
1,000	F	21-0742	27.7	28.3	27.8	27.7	29.7
500	F	21-0625	29.7	29.4	30.1	28.9	33.0
500	F	21-0626	26.7	25.2	26.4	26.0	28.8
0	F	21-0643	26.7	28.1	29.2	27.9	29.5
0	F	21-0644	25.3	25.3	25.5	26.5	26.9
250	F	21-0731	31.1	30.8	30.5	30.4	31.8

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250	F	21-0732	26.2	26.0	26.4	26.2	25.8
0	F	21-0735	25.7	26.2	28.2	28.3	28.5
0	F	21-0736	28.2	28.8	28.3	30.0	29.8
2,000	F	21-0729	27.6	29.6	28.4	30.3	31.5
2,000	F	21-0730	31.2	32.2	31.9	37.0	35.8
125	F	21-0641	30.0	30.0	31.3	33.3	33.1
125	F	21-0642	25.0	26.2	26.3	28.3	28.5
1,000	F	21-0627	31.9	35.0	33.2	35.6	33.6
1,000	F	21-0628	29.3	30.4	28.7	31.3	29.4
500	F	21-0647	28.0	27.4	27.2	26.3	27.0
500	F	21-0648	33.1	37.4	37.1	34.3	37.3
500	F	21-0713	27.1	29.0	30.6	29.8	29.6
500	F	21-0714	27.8	28.4	26.2	28.6	28.3
1,000	F	21-0649	24.9	25.2	25.1	25.4	24.6
1,000	F	21-0650	28.5	30.1	31.2	28.1	30.8
0	F	21-0737	28.4	29.4	29.8	29.9	30.4
0	F	21-0738	36.4	37.9	37.7	37.6	38.6
250	F	21-0683	24.5	24.6	25.1	26.0	25.7
250	F	21-0684	29.3	29.4	28.7	29.4	30.4
2,000	F	21-0717	25.9	27.5	26.7	26.0	26.6
2,000	F	21-0718	26.6	27.3	28.3	28.5	29.8
125	F	21-0721	27.0	25.4	26.6	26.5	27.3
125	F	21-0722	29.0	29.6	29.6	30.6	31.9
1,000	F	21-0723	33.8	31.9	31.3	32.7	32.9
1,000	F	21-0724	26.7	24.7	24.5	26.1	28.1
125	F	21-0663	29.1	29.1	28.1	28.8	33.3
125	F	21-0664	33.4	30.1	33.2	33.8	32.7

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2,000	F	21-0665	29.2	27.7	MK	MK	MK
2,000	F	21-0666	30.7	29.8	30.8	30.9	30.9
500	F	21-0671	28.9	27.5	29.5	31.1	31.2
500	F	21-0672	26.7	26.1	26.8	27.7	29.8
0	F	21-0739	29.5	28.3	29.0	28.3	31.5
0	F	21-0740	29.8	28.1	28.8	28.6	32.1
250	F	21-0699	29.8	31.1	30.8	31.5	31.8
250	F	21-0700	28.8	28.8	27.7	28.7	28.4
0	M	21-0539	44.8	43.4	42.7	43.2	45.7
0	M	21-0540	35.2	34.9	35.3	35.3	37.2
500	M	21-0517	35.0	32.2	31.5	32.3	33.4
500	M	21-0518	37.2	36.2	34.9	34.3	36.6
125	M	21-0607	34.7	36.8	35.8	35.3	36.2
125	M	21-0608	39.1	38.7	37.8	38.6	40.0
2,000	M	21-0610	37.2	37.0	35.1	34.7	35.6
250	M	21-0615	39.4	39.2	40.0	39.6	41.6
250	M	21-0616	37.7	37.4	38.4	38.8	38.8
1,000	M	21-0593	36.3	35.3	35.9	36.1	38.2
1,000	M	21-0594	36.1	36.8	37.4	37.4	39.5
2,000	M	21-0565	36.9	37.4	36.4	36.2	37.0
2,000	M	21-0566	35.5	35.7	35.3	34.8	35.3
125	M	21-0535	43.8	44.8	45.1	43.9	44.9
125	M	21-0536	38.0	39.9	38.2	38.9	38.7
250	M	21-0559	37.3	37.1	36.6	36.1	35.9
250	M	21-0560	41.9	43.7	43.8	42.9	44.8
1,000	M	21-0605	39.6	39.9	37.9	36.5	39.2
1,000	M	21-0606	36.9	36.4	36.7	35.1	35.3

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500	M	21-0533	37.7	35.8	31.7	35.0	36.2
500	M	21-0534	33.3	32.8	33.2	32.5	34.0
0	M	21-0583	36.6	34.6	34.7	34.3	35.3
0	M	21-0584	36.8	37.8	38.5	37.8	37.3
250	M	21-0557	40.6	41.4	42.2	41.6	42.8
250	M	21-0558	37.8	37.1	38.3	38.8	39.3
0	M	21-0601	36.0	35.6	36.9	38.9	39.8
0	M	21-0602	40.6	40.0	40.1	39.8	40.7
2,000	M	21-0507	37.5	38.7	38.7	38.3	40.3
2,000	M	21-0508	43.0	42.8	41.5	39.8	42.4
125	M	21-0547	37.6	37.8	37.3	37.2	37.3
125	M	21-0548	36.3	38.0	39.0	38.9	39.9
1,000	M	21-0525	33.3	34.4	33.4	33.5	34.1
1,000	M	21-0526	37.1	35.8	34.8	34.6	36.9
500	M	21-0579	40.0	39.5	37.5	36.9	37.3
500	M	21-0580	37.1	37.1	37.0	37.0	38.0
500	M	21-0521	38.4	37.3	38.1	39.2	39.2
500	M	21-0522	42.6	41.3	42.2	43.9	45.9
1,000	M	21-0543	38.4	39.5	36.4	38.2	39.1
1,000	M	21-0544	35.5	33.7	34.1	35.4	37.4
0	M	21-0529	38.4	37.1	36.6	38.2	38.2
0	M	21-0530	38.4	38.5	38.2	38.8	39.7
250	M	21-0513	35.3	33.8	35.0	33.8	34.6
250	M	21-0514	38.4	37.9	38.7	38.3	38.5
2,000	M	21-0503	41.1	39.7	37.4	36.3	39.0
2,000	M	21-0504	39.3	40.0	38.8	39.5	40.2
125	M	21-0515	37.9	38.3	36.8	37.3	38.3

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125	M	21-0516	45.4	45.1	45.0	44.6	45.4
1,000	M	21-0603	39.7	37.4	38.1	38.4	39.7
1,000	M	21-0604	41.6	39.3	37.1	38.3	39.0
125	M	21-0567	36.3	36.8	37.6	37.5	38.7
125	M	21-0568	37.1	36.5	36.4	35.8	36.8
2,000	M	21-0599	39.8	38.4	38.9	38.0	39.2
2,000	M	21-0600	38.7	FD	FD	FD	FD
500	M	21-0501	40.1	37.8	35.5	MK	MK
500	M	21-0502	38.1	38.8	39.4	40.2	39.7
0	M	21-0509	36.6	37.0	37.9	39.1	39.7
0	M	21-0510	33.5	33.1	33.1	33.9	34.8
250	M	21-0563	38.1	38.2	37.6	38.5	38.4
250	M	21-0564	32.7	32.4	32.9	31.8	32.8

Table F-3. Body Weights (g) from 28-day Test with Buckeye

Dose (mg/kg-d)	Sex	Animal	Day0	Day7	Day14	Day21	Day28
500	F	21-1485	25.4	23.4	24.1	23.6	24.8
500	F	21-1486	31.3	29.4	29.1	28.6	30.5
2,000	F	21-1463	29.8	32.0	29.8	30.0	32.3
2,000	F	21-1464	29.4	29.8	29.3	28.5	30.9
0	F	21-1455	27.2	27.2	25.4	27.0	27.5
0	F	21-1456	28.1	26.8	26.6	26.2	26.8
1,000	F	21-1443	24.6	24.2	24.4	24.7	25.7
1,000	F	21-1444	28.1	27.0	25.5	25.1	27.3
125	F	21-1493	26.6	27.2	25.7	26.3	27.5
125	F	21-1494	29.6	29.4	30.7	30.5	32.6
250	F	21-1457	27.6	27.2	26.0	26.7	29.3
250	F	21-1458	29.9	29.2	28.5	28.6	31.9
125	F	21-1469	27.8	26.7	27.4	28.6	26.6
125	F	21-1470	30.0	29.6	30.0	29.7	29.6
1,000	F	21-1467	28.4	27.2	26.9	26.3	27.3
1,000	F	21-1468	29.3	30.2	29.8	29.1	29.5
250	F	21-1497	30.2	29.8	29.0	29.2	31.8
250	F	21-1498	29.6	28.0	29.0	28.3	28.8
0	F	21-1487	29.5	29.6	29.3	28.5	29.9
0	F	21-1488	33.2	33.9	33.6	32.9	33.9
2,000	F	21-1473	27.6	27.5	27.4	27.9	28.0
2,000	F	21-1474	27.2	25.8	25.7	27.6	28.6
500	F	21-1441	28.3	28.9	28.1	28.4	29.9
500	F	21-1442	30.4	29.8	32.0	31.5	30.3
0	F	21-1491	29.4	29.5	30.4	30.7	30.5

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0	F	21-1492	29.1	30.0	29.9	31.3	30.2
500	F	21-1449	27.0	26.0	28.6	26.2	29.7
500	F	21-1450	26.9	26.8	29.4	31.3	30.6
2,000	F	21-1479	30.3	30.1	29.3	29.4	29.8
2,000	F	21-1480	25.0	26.1	26.7	25.6	26.4
250	F	21-1451	28.2	26.3	26.5	27.3	28.2
250	F	21-1452	32.0	33.3	31.6	31.7	32.6
125	F	21-1471	27.0	25.9	28.2	28.3	26.1
125	F	21-1472	29.5	28.3	27.9	28.5	28.7
1,000	F	21-1465	29.6	29.5	29.6	29.8	33.4
1,000	F	21-1466	30.8	29.4	29.8	30.0	30.2
1,000	F	21-1489	31.8	29.5	29.9	30.3	29.2
1,000	F	21-1490	29.7	26.8	26.4	27.5	27.6
250	F	21-1483	30.5	30.8	33.3	27.9	33.8
250	F	21-1484	27.5	26.6	26.7	31.8	28.2
125	F	21-1477	30.3	30.3	30.1	29.6	30.8
125	F	21-1478	31.3	29.7	29.7	31.2	32.5
500	F	21-1461	30.0	29.5	29.2	28.7	29.2
500	F	21-1462	28.5	30.5	28.5	29.4	28.4
0	F	21-1447	26.9	26.1	25.8	26.0	25.9
0	F	21-1448	29.9	27.9	28.8	28.0	27.5
2,000	F	21-1453	32.5	31.9	31.0	31.6	31.9
2,000	F	21-1454	32.4	30.7	29.8	29.8	30.8
250	F	21-1499	27.9	28.4	27.4	29.3	33.3
250	F	21-1500	27.0	26.8	26.9	30.3	28.5
2,000	F	21-1475	27.6	27.4	27.6	27.4	27.6
2,000	F	21-1476	30.0	28.1	29.2	28.4	29.8

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1,000	F	21-1459	31.6	31.1	35.0	34.7	32.9
1,000	F	21-1460	30.2	28.8	28.3	30.9	29.7
0	F	21-1495	29.2	28.1	28.7	28.4	31.7
0	F	21-1496	31.0	28.9	29.7	29.8	31.3
125	F	21-1445	30.2	26.9	26.8	26.8	26.7
125	F	21-1446	28.6	28.3	27.5	28.2	28.2
500	F	21-1481	29.4	28.5	32.2	32.3	33.3
500	F	21-1482	32.0	29.8	31.2	32.2	31.4
500	M	21-1409	30.7	28.5	27.8	28.5	28.9
500	M	21-1410	34.1	34.2	35.0	34.5	35.2
2,000	M	21-1405	34.0	30.6	32.6	32.2	32.2
2,000	M	21-1406	34.7	32.7	32.1	31.6	32.1
0	M	21-1417	36.3	35.7	34.9	34.7	35.3
0	M	21-1418	40.7	41.3	41.0	40.9	41.7
1,000	M	21-1415	37.9	37.8	36.6	37.7	37.6
1,000	M	21-1416	35.5	34.5	35.2	35.9	36.5
125	M	21-1425	38.4	37.7	37.3	36.5	37.6
125	M	21-1426	36.3	35.4	33.8	34.8	34.5
250	M	21-1375	35.3	34.9	34.7	35.3	35.4
250	M	21-1376	39.0	38.9	38.0	38.9	38.3
125	M	21-1383	39.7	38.0	39.6	39.9	39.8
125	M	21-1384	37.4	36.3	37.3	36.6	37.9
1,000	M	21-1379	39.0	38.9	39.7	39.0	39.4
1,000	M	21-1380	43.0	41.2	40.6	39.7	40.1
250	M	21-1377	40.7	41.0	40.7	41.0	41.5
250	M	21-1378	35.2	34.8	35.8	35.7	35.6
0	M	21-1385	37.0	40.6	37.4	36.7	37.8

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0	M	21-1386	40.6	38.4	38.9	40.5	41.5
2,000	M	21-1407	41.4	42.1	41.8	41.4	40.8
2,000	M	21-1408	38.2	37.2	36.7	37.2	36.5
500	M	21-1421	40.9	40.6	41.7	40.8	40.7
500	M	21-1422	41.3	40.4	39.9	39.7	38.5
0	M	21-1391	42.2	41.9	41.7	42.0	42.6
0	M	21-1392	41.0	41.3	43.3	43.8	44.1
500	M	21-1413	43.1	42.1	42.4	43.0	43.9
500	M	21-1414	36.8	36.8	36.2	37.9	36.9
2,000	M	21-1435	38.0	37.7	38.0	37.6	38.0
2,000	M	21-1436	42.0	40.5	39.5	40.4	40.9
250	M	21-1401	37.8	36.8	36.5	37.5	38.0
250	M	21-1402	35.1	33.7	34.0	33.7	34.0
125	M	21-1433	35.7	37.3	36.0	37.4	37.5
125	M	21-1434	39.7	39.7	40.0	40.6	40.0
1,000	M	21-1429	42.7	43.3	43.0	43.6	43.9
1,000	M	21-1430	40.1	39.3	40.0	40.7	41.1
1,000	M	21-1423	37.7	37.6	38.7	38.7	37.7
1,000	M	21-1424	39.9	38.7	40.1	41.4	42.1
250	M	21-1411	41.8	41.1	39.7	42.0	41.2
250	M	21-1412	39.5	37.2	37.8	38.2	37.0
125	M	21-1399	41.4	41.7	41.4	41.3	41.2
125	M	21-1400	42.9	42.3	43.1	42.4	42.5
500	M	21-1393	38.5	39.4	39.7	40.1	40.9
500	M	21-1394	34.2	34.0	33.3	34.7	34.3
0	M	21-1419	42.2	41.1	40.5	42.1	41.7
0	M	21-1420	42.2	41.0	41.1	40.7	40.4

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2,000	M	21-1381	39.4	38.5	38.7	37.8	38.3
2,000	M	21-1382	41.2	39.5	39.8	41.5	41.5
250	M	21-1439	38.2	38.5	37.3	38.3	39.6
250	M	21-1440	37.5	37.4	38.7	37.9	38.0
2,000	M	21-1389	37.1	33.9	33.8	34.4	35.2
2,000	M	21-1390	40.0	40.1	39.2	39.8	40.8
1,000	M	21-1395	33.1	33.0	32.1	33.5	33.3
1,000	M	21-1396	38.0	38.9	38.0	38.9	39.5
0	M	21-1387	36.3	36.1	36.6	36.2	36.8
0	M	21-1388	33.5	33.0	33.4	34.2	34.7
125	M	21-1397	37.3	36.7	35.2	35.3	36.8
125	M	21-1398	37.6	39.1	37.8	36.9	38.2
500	M	21-1431	39.8	39.2	39.8	40.5	42.0
500	M	21-1432	41.7	40.5	41.2	40.6	43.0

Table F-4. Body Weights (g) from 28-day Test with ECOPOL A

Dose (mg/kg-d)	Sex	Animal	Day0	Day7	Day14	Day21	Day28
0	F	21-1059	28.5	29.2	27.5	29.3	29.1
0	F	21-1060	30.4	27.9	29.7	31.4	29.7
1,000	F	21-1021	29.3	27.8	28.0	32.9	30.6
1,000	F	21-1022	28.1	27.4	27.1	28.3	27.7
2,000	F	21-1053	34.4	30.9	36.2	33.1	37.2
2,000	F	21-1054	35.7	34.6	32.8	31.9	34.2
125	F	21-1019	37.8	36.0	35.7	37.7	40.0
125	F	21-1020	33.2	31.5	31.6	33.5	37.2
250	F	21-1023	29.4	28.5	29.2	30.0	29.7
250	F	21-1024	29.1	28.9	29.5	31.1	31.5
500	F	21-1089	30.1	29.4	31.1	31.5	34.0
500	F	21-1090	28.4	28.3	27.7	28.5	28.4
2,000	F	21-1103	31.0	28.0	26.7	27.4	27.1
2,000	F	21-1104	33.4	31.1	29.5	30.4	31.9
500	F	21-1105	36.1	32.6	38.5	34.0	37.7
500	F	21-1106	36.8	35.4	41.0	40.5	41.0
0	F	21-1031	36.1	31.5	32.6	34.1	35.4
0	F	21-1032	34.2	32.2	31.9	34.2	35.9
250	F	21-1029	33.9	31.1	33.0	MK	MK
250	F	21-1030	30.5	31.1	33.3	29.4	30.5
1,000	F	21-1093	34.1	33.8	33.0	37.9	37.5
1,000	F	21-1094	26.2	25.6	25.6	26.4	25.9
125	F	21-1013	30.4	29.5	28.6	29.2	31.4
125	F	21-1014	32.7	33.9	35.3	34.9	39.6
250	F	21-1015	33.6	32.4	33.3	35.0	35.5

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250	F	21-1016	32.0	31.5	29.9	29.8	30.0
2,000	F	21-1057	29.2	27.7	28.1	28.4	28.3
2,000	F	21-1058	30.5	28.3	29.0	29.9	29.5
125	F	21-1011	28.5	28.3	30.6	28.5	31.3
125	F	21-1012	31.6	30.8	33.0	31.3	33.9
0	F	21-1007	33.2	29.3	31.0	33.9	31.5
0	F	21-1008	38.2	33.5	32.4	36.2	35.1
500	F	21-1009	36.3	32.8	35.0	33.6	36.8
500	F	21-1010	30.5	30.0	30.2	32.9	33.0
1,000	F	21-1063	33.9	31.9	31.6	32.6	34.0
1,000	F	21-1064	29.7	27.9	28.8	29.2	26.8
125	F	21-1079	28.7	28.5	32.2	30.8	33.6
125	F	21-1080	29.4	26.8	29.5	29.3	29.2
250	F	21-1081	32.4	32.9	33.6	32.5	37.5
250	F	21-1082	30.2	27.5	28.5	28.4	31.4
500	F	21-1049	31.4	28.8	30.3	34.8	31.9
500	F	21-1050	34.9	33.8	32.6	34.2	36.2
1,000	F	21-1065	36.6	34.1	34.7	35.2	34.2
1,000	F	21-1066	28.6	27.1	27.2	27.4	27.5
0	F	21-1077	33.8	32.3	34.8	36.0	36.4
0	F	21-1078	33.8	32.2	31.2	32.2	32.0
2,000	F	21-1047	34.1	34.2	33.5	35.2	38.4
2,000	F	21-1048	33.9	30.5	32.3	30.7	31.6
500	F	21-1113	28.7	28.4	27.8	29.3	29.3
500	F	21-1114	30.2	26.0	27.0	28.2	28.8
0	F	21-1119	31.8	30.5	30.4	31.4	30.8
0	F	21-1120	32.8	32.8	32.2	34.1	33.2

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1,000	F	21-1051	26.7	27.4	26.7	25.6	26.0
1,000	F	21-1052	31.2	30.0	30.2	28.3	30.1
2,000	F	21-1099	28.1	27.7	28.8	28.8	29.4
2,000	F	21-1100	29.3	29.3	31.8	29.8	29.3
125	F	21-1107	31.4	29.7	31.5	31.0	30.0
125	F	21-1108	35.2	34.3	33.8	34.3	32.3
250	F	21-1071	28.2	25.2	24.8	25.8	28.9
250	F	21-1072	29.5	28.6	27.1	31.5	28.8
0	M	21-0821	36.5	35.8	34.4	34.7	34.5
0	M	21-0822	37.0	36.6	35.3	35.8	36.2
1,000	M	21-0763	38.2	39.0	37.0	38.6	38.2
1,000	M	21-0764	40.6	38.1	37.6	36.9	38.2
2,000	M	21-0803	36.3	36.3	35.1	36.2	35.1
2,000	M	21-0804	37.7	36.0	35.2	36.0	35.9
125	M	21-0837	37.8	35.8	35.4	36.8	36.8
125	M	21-0838	36.7	35.6	36.0	35.8	36.2
250	M	21-0771	35.0	33.2	33.4	35.1	36.8
250	M	21-0772	38.4	38.1	38.3	39.1	40.0
500	M	21-0767	39.1	39.0	39.3	41.0	40.5
500	M	21-0768	39.4	37.6	37.2	36.6	38.8
2,000	M	21-0861	31.9	31.0	30.3	30.6	31.2
2,000	M	21-0862	34.2	33.8	33.0	33.5	33.7
500	M	21-0845	37.2	37.8	36.9	37.1	35.6
500	M	21-0846	35.2	36.7	35.9	36.5	37.0
0	M	21-0815	39.2	39.7	38.6	38.6	39.1
0	M	21-0816	37.1	36.0	35.5	36.7	37.3
250	M	21-0851	41.4	42.3	41.8	42.7	42.7

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250	M	21-0852	35.1	35.3	34.7	33.8	33.7
1,000	M	21-0793	36.6	35.5	36.1	FD	FD
1,000	M	21-0794	34.6	32.7	33.4	32.7	33.0
125	M	21-0879	35.9	36.3	35.0	36.8	38.1
125	M	21-0880	43.7	42.4	41.9	43.7	45.3
250	M	21-0775	39.1	37.7	38.5	38.9	40.4
250	M	21-0776	39.4	39.4	38.8	38.9	39.5
2,000	M	21-0853	35.8	34.5	33.5	34.1	33.4
2,000	M	21-0854	33.2	30.5	31.9	31.5	29.1
125	M	21-0779	39.7	40.5	41.6	41.0	40.8
125	M	21-0780	36.7	36.5	37.1	37.6	37.9
0	M	21-0825	38.2	38.4	38.0	38.4	39.8
0	M	21-0826	35.6	36.1	36.3	36.8	38.7
500	M	21-0811	44.8	44.0	44.6	46.2	37.4
500	M	21-0812	39.6	37.8	37.8	37.3	37.7
1,000	M	21-0757	36.5	35.6	36.0	36.0	35.8
1,000	M	21-0758	39.1	37.6	37.2	36.1	36.4
125	M	21-0805	36.7	MK	MK	MK	MK
125	M	21-0806	37.5	35.8	36.4	37.8	37.4
250	M	21-0875	38.3	37.1	36.7	37.5	38.5
250	M	21-0876	38.3	39.8	39.7	39.7	40.4
500	M	21-0867	38.3	37.7	36.7	38.5	39.3
500	M	21-0868	33.6	35.4	35.5	35.1	36.1
1,000	M	21-0781	37.8	38.2	37.7	36.9	39.0
1,000	M	21-0782	36.4	34.3	34.1	34.0	33.8
0	M	21-0873	39.5	38.3	37.8	39.3	39.3
0	M	21-0874	36.9	35.9	35.9	36.2	36.5

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2,000	M	21-0839	44.2	41.6	41.3	40.7	41.7
2,000	M	21-0840	43.5	43.3	43.8	42.9	44.6
500	M	21-0801	36.1	35.6	35.5	36.8	31.0
500	M	21-0802	38.9	37.7	38.2	39.0	38.7
0	M	21-0807	37.9	39.1	38.4	39.5	40.5
0	M	21-0808	35.2	35.9	34.9	35.6	35.1
1,000	M	21-0795	36.7	35.7	35.3	37.0	35.6
1,000	M	21-0796	36.9	37.5	36.2	35.2	35.7
2,000	M	21-0849	37.9	34.4	35.4	FD	FD
2,000	M	21-0850	39.9	37.9	37.8	39.7	40.1
125	M	21-0855	40.6	39.5	39.8	40.7	41.7
125	M	21-0856	36.7	36.7	36.4	37.0	36.6
250	M	21-0783	37.3	37.9	MK	MK	MK
250	M	21-0784	41.1	41.5	41.8	44.1	43.5

Table F-5. Body Weights (g) from 28-day Test with Enviro USP

Dose (mg/kg-d)	Sex	Animal	Day0	Day7	Day14	Day21	Day28
0	F	21-1181	39.9	36.8	35.2	36.1	37.7
0	F	21-1182	33.3	32.9	33.1	32.8	32.4
1,000	F	21-1151	28.8	29.2	27.0	29.3	28.1
1,000	F	21-1152	28.0	28.1	27.3	28.5	27.7
125	F	21-1221	33.2	31.0	30.3	32.4	32.7
125	F	21-1222	36.1	34.4	35.4	38.8	42.9
250	F	21-1183	30.8	31.1	28.6	32.1	29.6
250	F	21-1184	32.6	29.4	32.1	30.7	30.4
2,000	F	21-1207	34.4	33.7	32.7	33.1	32.9
2,000	F	21-1208	35.0	33.5	31.9	32.5	32.3
500	F	21-1135	33.9	34.8	31.1	33.1	34.3
500	F	21-1136	37.8	34.9	34.0	37.8	35.8
500	F	21-1215	29.8	28.5	27.6	28.4	29.3
500	F	21-1216	31.9	33.8	33.3	32.4	32.3
250	F	21-1159	35.5	38.6	36.2	39.8	40.2
250	F	21-1160	35.1	31.5	32.3	31.9	37.2
2,000	F	21-1129	30.2	29.2	27.0	27.9	29.0
2,000	F	21-1130	32.1	31.6	30.3	31.9	30.7
0	F	21-1195	37.4	34.6	33.9	33.5	33.8
0	F	21-1196	31.2	32.2	31.3	32.3	33.6
125	F	21-1137	36.1	30.3	31.2	31.5	33.3
125	F	21-1138	32.7	34.0	35.2	34.0	35.0
1,000	F	21-1203	34.6	33.1	32.0	39.9	37.2
1,000	F	21-1204	37.5	35.2	35.6	34.4	36.3
125	F	21-1231	35.1	35.4	32.6	33.1	36.2

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125	F	21-1232	32.9	36.2	33.5	31.6	34.9
2,000	F	21-1209	36.7	35.8	33.6	33.8	34.6
2,000	F	21-1210	34.9	37.8	32.7	35.6	37.6
0	F	21-1157	36.3	35.2	34.1	36.2	35.2
0	F	21-1158	34.5	34.6	36.1	36.4	38.6
1,000	F	21-1133	35.1	32.6	33.7	34.9	37.0
1,000	F	21-1134	32.0	30.6	31.2	30.8	30.9
500	F	21-1177	32.0	34.2	32.8	33.2	37.1
500	F	21-1178	29.6	29.0	28.5	27.8	28.6
250	F	21-1165	33.0	32.8	32.3	32.6	32.2
250	F	21-1166	31.1	30.3	29.7	29.9	30.4
250	F	21-1179	29.7	26.9	27.2	25.7	27.1
250	F	21-1180	37.5	35.4	35.5	37.1	36.6
125	F	21-1145	29.9	31.2	30.3	31.8	32.6
125	F	21-1146	31.2	31.2	30.9	31.9	34.7
500	F	21-1175	33.9	34.3	32.8	33.0	34.1
500	F	21-1176	27.7	26.8	25.7	25.3	27.2
2,000	F	21-1197	28.7	29.8	27.6	28.8	30.1
2,000	F	21-1198	34.8	34.7	35.6	36.2	34.9
1,000	F	21-1235	31.4	30.2	31.4	31.2	32.3
1,000	F	21-1236	31.1	31.4	32.5	31.6	33.7
0	F	21-1185	32.0	32.0	32.8	33.1	34.1
0	F	21-1186	32.6	31.1	31.9	30.7	31.2
2,000	F	21-1163	37.0	34.1	33.0	33.6	32.2
2,000	F	21-1164	30.2	29.8	29.3	32.1	FD
500	F	21-1219	30.4	29.6	32.4	31.8	30.8
500	F	21-1220	30.6	27.7	29.0	28.1	29.9

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1,000	F	21-1193	34.9	33.5	33.9	33.3	33.4
1,000	F	21-1194	33.4	31.5	32.8	31.8	32.6
250	F	21-1237	32.0	30.9	34.0	31.9	32.5
250	F	21-1238	27.8	27.1	27.5	29.5	30.4
0	F	21-1189	30.0	30.2	30.4	31.7	30.6
0	F	21-1190	29.8	30.8	32.3	31.0	32.6
125	F	21-1187	35.3	32.7	35.2	32.4	34.1
0	M	21-0885	42.6	42.2	41.1	42.4	41.8
0	M	21-0886	41.7	39.9	40.9	40.5	40.7
1,000	M	21-0889	38.8	38.2	39.0	38.4	39.1
1,000	M	21-0890	40.6	38.6	39.3	40.1	39.9
125	M	21-0963	43.5	43.1	42.3	42.7	43.4
125	M	21-0964	35.1	36.2	36.4	36.5	38.1
250	M	21-0919	39.9	40.5	39.6	40.9	42.2
250	M	21-0920	37.6	37.3	36.7	37.5	38.9
2,000	M	21-0967	37.1	35.1	34.8	36.2	36.2
2,000	M	21-0968	38.9	39.5	40.4	39.2	40.9
500	M	21-0897	38.0	37.6	36.9	37.0	38.6
500	M	21-0898	36.3	36.1	36.4	34.2	36.1
500	M	21-0969	38.9	39.6	39.3	39.5	40.0
500	M	21-0970	38.5	37.5	37.2	37.4	37.8
250	M	21-0941	36.6	36.8	36.7	37.6	37.6
250	M	21-0942	37.9	36.8	36.3	36.6	38.9
2,000	M	21-0977	31.8	31.8	31.5	31.0	30.4
2,000	M	21-0978	38.5	37.8	37.6	38.8	39.5
0	M	21-0955	34.6	34.5	33.6	35.1	34.0
0	M	21-0956	38.5	35.3	36.8	37.4	37.5

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125	M	21-0921	37.1	36.3	36.5	36.8	35.8
125	M	21-0922	40.2	39.1	38.1	40.1	41.4
1,000	M	21-0905	40.0	40.8	40.2	40.9	41.5
1,000	M	21-0906	34.8	33.4	34.5	33.5	35.1
125	M	21-0983	37.4	35.7	36.0	34.9	35.7
125	M	21-0984	32.5	32.3	32.0	31.3	32.7
2,000	M	21-0909	35.8	36.3	36.0	36.2	36.0
2,000	M	21-0910	42.2	40.4	38.6	39.5	38.9
0	M	21-0917	35.7	35.1	35.8	35.2	36.8
0	M	21-0918	33.9	33.2	34.2	35.3	36.1
1,000	M	21-0945	37.9	37.6	36.5	37.4	36.8
1,000	M	21-0946	34.3	33.6	34.2	34.8	36.2
500	M	21-0947	36.6	37.0	36.6	37.8	39.4
500	M	21-0948	39.9	41.2	40.9	41.7	42.0
250	M	21-0937	41.1	42.7	42.3	44.2	45.0
250	M	21-0938	34.4	33.4	33.7	34.6	34.6
250	M	21-0883	36.5	37.5	37.8	39.1	38.7
250	M	21-0884	38.4	39.8	41.0	40.9	42.9
125	M	21-0929	34.8	35.0	34.5	35.7	36.4
125	M	21-0930	36.7	36.6	37.5	38.9	39.5
500	M	21-0979	39.0	38.5	37.8	39.5	39.4
500	M	21-0980	31.7	32.3	31.9	31.3	FD
2,000	M	21-0943	40.1	40.2	39.0	38.8	40.8
2,000	M	21-0944	35.3	35.4	35.3	35.3	35.4
1,000	M	21-0887	41.4	42.6	41.8	42.8	43.7
1,000	M	21-0888	39.1	39.1	39.1	38.6	39.9
0	M	21-0965	38.4	38.7	37.7	38.8	39.9

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0	M	21-0966	37.1	37.1	37.0	38.1	39.0
2,000	M	21-0925	39.7	38.3	39.1	38.9	38.7
2,000	M	21-0926	36.7	36.3	37.4	37.9	37.7
500	M	21-0951	34.7	35.0	35.2	34.5	36.0
500	M	21-0952	39.1	38.9	39.1	37.2	37.9
1,000	M	21-0923	34.2	35.4	36.1	35.9	36.9
1,000	M	21-0924	36.8	36.6	37.4	38.4	39.4
250	M	21-0981	34.1	34.9	35.5	35.2	36.4
250	M	21-0982	44.9	44.4	46.0	45.3	45.8
0	M	21-0901	35.1	35.6	35.9	35.3	35.7
0	M	21-0902	38.4	37.0	37.6	37.8	38.0
125	M	21-0995	38.2	38.4	39.4	40.7	40.3
125	M	21-0996	34.2	35.4	34.5	34.0	35.4

Table F-6. Body Weights (g) from 28-day Test with NFD 20-391

Dose (mg/kg-d)	Sex	Animal	Day0	Day7	Day14	Day21	Day28
250	F	21-1243	34.0	32.2	32.4	33.4	34.1
250	F	21-1244	30.6	29.4	28.6	28.8	28.4
500	F	21-1139	34.4	34.0	33.5	32.4	37.4
500	F	21-1140	41.8	40.1	37.0	37.8	38.8
1,000	F	21-1149	31.1	30.4	30.2	29.8	33.2
1,000	F	21-1150	32.4	29.1	28.2	29.4	30.7
2,000	F	21-1211	33.8	31.8	32.2	32.5	32.7
2,000	F	21-1212	30.7	29.0	29.1	28.8	29.3
125	F	21-1173	32.9	29.7	30.9	32.1	33.2
125	F	21-1174	33.0	32.4	31.0	32.8	31.5
0	F	21-1147	31.4	30.4	31.5	33.8	31.3
0	F	21-1148	33.9	31.4	32.3	31.7	35.0
125	F	21-1131	37.7	36.7	36.8	36.2	38.0
125	F	21-1132	33.6	30.4	30.8	30.6	30.0
0	F	21-1169	45.3	36.1	40.6	37.5	39.0
0	F	21-1170	35.8	33.1	32.7	34.9	34.3
500	F	21-1201	35.5	34.7	38.0	35.5	36.9
500	F	21-1202	41.0	39.2	38.7	39.6	42.3
250	F	21-1217	30.5	31.5	28.4	30.1	31.0
250	F	21-1218	30.0	28.2	28.9	28.4	29.3
2,000	F	21-1153	32.8	32.2	27.7	28.2	31.3
2,000	F	21-1154	31.4	29.6	29.1	29.0	30.3
1,000	F	21-1233	32.0	30.7	32.3	36.1	35.4
1,000	F	21-1234	29.1	28.1	28.3	27.6	29.3
1,000	F	21-1199	39.1	34.8	35.1	34.1	35.2
1,000	F	21-1200	38.4	34.8	35.6	33.8	33.0
250	F	21-1155	37.8	34.1	33.3	33.2	38.9

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250	F	21-1156	34.6	33.5	33.8	35.1	38.0
2,000	F	21-1141	34.8	32.1	31.6	32.3	33.9
2,000	F	21-1142	37.6	35.1	36.2	38.2	36.0
125	F	21-1127	30.3	29.0	27.9	29.4	31.8
125	F	21-1128	31.2	29.1	28.9	29.5	30.4
0	F	21-1245	35.0	32.3	31.9	32.7	36.0
0	F	21-1246	28.7	27.8	28.0	29.6	29.0
500	F	21-1239	29.1	28.6	30.8	29.3	27.8
500	F	21-1240	34.5	32.8	32.4	33.3	32.8
500	F	21-1161	37.5	31.5	36.0	32.5	34.2
500	F	21-1162	36.3	35.6	37.0	38.7	39.0
2,000	F	21-1171	37.6	35.8	33.7	35.3	34.5
2,000	F	21-1172	40.9	34.7	35.7	34.1	35.0
125	F	21-1226	32.5	32.4	32.2	34.8	33.5
0	F	21-1241	26.1	25.7	25.8	27.3	26.9
0	F	21-1242	30.0	29.1	30.0	30.0	30.2
1,000	F	21-1224	38.7	42.6	40.3	41.0	41.9
1,000	F	21-1225	35.0	35.2	36.3	35.6	34.5
250	F	21-1205	33.9	32.0	33.2	36.7	34.9
250	F	21-1206	34.4	31.2	32.3	31.6	33.1
0	F	21-1227	38.6	36.5	34.1	33.5	36.2
0	F	21-1228	34.2	29.8	30.1	29.9	30.4
125	F	21-1191	36.7	34.7	39.6	40.2	38.2
125	F	21-1192	36.4	32.4	31.6	34.9	33.2
250	F	21-1167	27.7	29.3	27.6	27.8	29.9
250	F	21-1168	26.6	25.8	26.3	26.4	27.3
1,000	F	21-1143	33.9	29.5	28.8	28.7	30.1
1,000	F	21-1144	34.7	31.4	31.0	31.6	32.9
500	F	21-1229	29.1	28.1	26.5	28.0	27.6

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500	F	21-1230	32.8	31.7	30.7	32.0	31.6
2,000	F	21-1213	30.5	31.3	29.8	30.6	35.8
2,000	F	21-1214	32.1	30.1	27.4	28.8	29.6
250	M	21-0939	36.5	35.7	35.7	35.1	35.6
250	M	21-0940	35.1	34.3	34.5	35.6	34.9
500	M	21-0961	43.2	41.1	40.3	41.3	40.6
500	M	21-0962	37.2	35.7	35.0	36.5	36.3
1,000	M	21-0903	39.4	38.2	38.6	40.0	39.3
1,000	M	21-0904	35.6	34.0	34.3	34.9	35.4
2,000	M	21-0989	39.8	36.2	36.4	35.7	37.5
2,000	M	21-0990	44.6	43.2	42.3	42.5	42.1
125	M	21-0987	31.6	31.0	31.1	30.8	30.7
125	M	21-0988	33.1	33.9	34.0	34.1	35.3
0	M	21-0881	39.1	37.9	38.2	38.9	37.0
0	M	21-0882	42.9	42.4	41.0	42.3	41.3
125	M	21-0913	40.5	38.6	37.0	36.8	37.7
125	M	21-0914	41.6	41.3	39.4	40.7	40.0
0	M	21-0949	37.7	37.4	36.9	37.2	38.9
0	M	21-0950	39.4	40.5	40.0	42.3	41.0
500	M	21-0893	46.0	44.4	43.4	43.6	43.5
500	M	21-0894	38.9	38.1	39.1	39.7	40.6
250	M	21-0933	36.0	35.7	34.5	36.2	37.0
250	M	21-0934	39.0	36.0	36.8	37.4	36.4
2,000	M	21-0973	35.8	35.8	36.1	34.7	35.5
2,000	M	21-0974	38.9	36.2	37.3	36.4	36.0
1,000	M	21-0991	39.1	38.0	35.9	35.9	36.4
1,000	M	21-0992	36.3	36.5	35.8	37.9	37.5
1,000	M	21-0895	41.5	43.5	39.8	41.9	41.0
1,000	M	21-0896	34.9	35.8	32.8	34.6	34.6

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250	M	21-0985	40.6	39.0	39.9	38.3	40.3
250	M	21-0986	37.2	36.7	36.7	37.2	37.5
2,000	M	21-0931	39.4	39.7	36.5	38.4	39.1
2,000	M	21-0932	33.7	34.0	34.2	35.0	35.2
125	M	21-0927	42.3	43.1	42.4	43.0	42.1
125	M	21-0928	36.4	35.7	35.9	36.7	36.7
0	M	21-1005	39.5	40.4	39.9	40.4	40.0
0	M	21-1006	39.9	40.7	40.1	42.1	40.3
500	M	21-0993	38.6	39.8	40.7	41.7	40.1
500	M	21-0994	39.5	38.8	38.0	39.9	39.7
500	M	21-0891	44.4	42.8	44.1	44.4	45.0
500	M	21-0892	39.9	40.0	39.9	41.9	40.9
2,000	M	21-0899	37.5	36.6	37.2	36.1	38.1
2,000	M	21-0900	41.5	41.2	41.2	41.9	41.7
125	M	21-0997	35.5	35.5	36.1	37.1	37.1
125	M	21-0998	39.9	40.0	39.2	40.4	33.9
0	M	21-1001	37.8	38.9	39.2	41.1	41.8
0	M	21-1002	42.3	41.9	41.8	42.5	44.6
1,000	M	21-0971	40.4	40.8	41.9	42.2	40.2
1,000	M	21-0972	38.3	37.8	39.0	40.2	42.1
250	M	21-0907	35.9	36.8	36.0	36.7	37.6
250	M	21-0908	35.4	34.8	35.5	35.9	36.2
0	M	21-0975	36.8	35.9	34.8	36.0	37.5
0	M	21-0976	40.1	40.2	39.3	40.2	40.5
125	M	21-0935	42.2	39.9	39.7	40.8	40.4
125	M	21-0936	38.9	38.8	39.0	39.3	40.7
250	M	21-0915	37.0	36.4	36.6	37.5	39.4
250	M	21-0916	43.4	44.5	44.0	44.6	45.8
1,000	M	21-1003	34.4	32.9	31.5	32.4	33.7

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1,000	M	21-1004	37.3	37.5	38.2	37.9	38.2
500	M	21-0953	37.3	38.4	37.6	38.5	39.1
500	M	21-0954	33.9	35.3	34.8	34.9	34.4
2,000	M	21-0959	35.0	35.4	35.8	36.0	33.7
2,000	M	21-0960	33.1	32.4	32.7	32.8	33.3

Table F-7. Body weights (g) from 28 day test with NRL 502W

Dose (mg/kg-d)	Sex	Animal	Day0	Day7	Day14	Day21	Day28
250	F	21-0707	28.7	31.5	27.6	31.1	32.4
250	F	21-0708	25.4	25.6	24.3	25.7	27.8
2,000	F	21-0631	30.2	28.2	27.1	28.7	28.5
2,000	F	21-0632	29.2	28.4	26.0	28.4	27.7
1,000	F	21-0695	28.0	29.0	27.8	28.0	30.2
1,000	F	21-0696	26.2	27.3	26.5	26.8	27.6
0	F	21-0689	32.9	32.4	31.1	32.3	34.1
0	F	21-0690	33.7	34.6	33.7	34.1	35.9
125	F	21-0673	34.6	32.5	34.8	33.0	38.1
125	F	21-0674	36.0	33.0	32.3	35.0	33.0
500	F	21-0637	31.5	29.7	32.2	30.4	31.5
500	F	21-0638	28.3	30.5	26.7	30.0	29.7
2,000	F	21-0677	32.6	29.3	29.6	31.1	30.1
2,000	F	21-0678	28.6	29.1	28.5	29.5	28.4
125	F	21-0623	26.8	27.2	26.4	30.9	30.6
125	F	21-0624	31.0	32.3	32.7	32.4	35.7
0	F	21-0697	28.7	28.6	27.2	28.8	32.1
0	F	21-0698	25.8	26.5	28.7	28.0	28.1
250	F	21-0705	35.4	34.3	34.3	37.6	34.6
250	F	21-0706	30.5	31.1	31.2	36.0	33.3
500	F	21-0679	29.1	28.6	30.0	31.5	29.5
500	F	21-0680	31.3	31.1	32.0	33.0	36.7
1,000	F	21-0693	31.7	30.9	31.7	31.2	32.2
1,000	F	21-0694	26.0	24.8	25.2	26.6	26.2
125	F	21-0639	34.2	34.2	34.2	34.6	33.4

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125	F	21-0640	29.1	28.3	27.8	32.0	29.6
0	F	21-0633	31.0	29.2	28.9	29.8	29.3
0	F	21-0634	26.8	MK	MK	MK	MK
500	F	21-0719	30.6	31.5	31.3	32.8	32.8
500	F	21-0720	29.8	29.6	31.8	30.4	32.8
2,000	F	21-0687	34.1	33.6	34.3	33.7	35.6
2,000	F	21-0688	27.6	26.6	27.2	27.5	28.2
1,000	F	21-0701	28.6	27.2	26.9	27.7	27.9
1,000	F	21-0702	30.5	31.5	31.0	29.6	29.9
250	F	21-0635	28.1	29.3	28.1	33.3	31.1
250	F	21-0636	24.3	24.6	26.0	25.3	25.1
500	F	21-0691	24.5	25.9	25.3	27.2	27.3
500	F	21-0692	28.2	26.7	26.8	28.0	27.8
250	F	21-0727	32.5	33.1	31.9	35.9	34.7
250	F	21-0728	31.0	30.2	30.1	30.6	30.8
125	F	21-0703	28.4	29.4	28.9	30.7	31.2
125	F	21-0704	30.9	31.2	29.0	32.9	32.2
1,000	F	21-0711	33.7	31.5	30.3	32.4	33.2
1,000	F	21-0712	34.0	33.4	33.2	34.3	32.1
0	F	21-0733	37.9	35.4	40.4	36.2	44.2
0	F	21-0734	31.9	31.9	32.1	31.0	32.0
2,000	F	21-0669	30.0	29.3	28.5	27.8	29.0
2,000	F	21-0670	29.4	28.8	30.3	29.8	30.9
0	F	21-0685	26.8	26.5	25.4	26.6	26.0
0	F	21-0686	30.5	30.8	29.3	32.2	29.9
1,000	F	21-0667	33.9	32.7	32.6	35.0	32.5
1,000	F	21-0668	33.6	31.3	31.6	30.2	33.7

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2,000	F	21-0653	29.3	27.7	29.3	31.2	32.7
2,000	F	21-0654	34.8	34.1	35.8	36.7	39.0
500	F	21-0645	31.6	33.9	33.6	36.4	35.9
500	F	21-0646	35.6	32.4	32.3	31.8	38.2
250	F	21-0715	37.2	36.3	33.1	39.7	36.3
250	F	21-0716	34.7	31.9	32.8	34.6	33.9
125	F	21-0709	32.4	32.2	32.9	32.7	33.5
125	F	21-0710	25.5	25.8	25.3	26.7	25.6
250	M	21-0569	40.2	37.3	38.6	38.5	39.1
250	M	21-0570	33.2	34.0	34.9	33.9	35.6
2,000	M	21-0511	37.2	36.9	36.5	36.6	36.3
2,000	M	21-0512	36.4	35.4	35.4	36.8	36.3
1,000	M	21-0585	34.0	34.0	33.6	35.0	34.7
1,000	M	21-0586	33.9	34.5	33.6	34.6	34.8
0	M	21-0577	35.2	34.7	34.8	35.7	35.8
0	M	21-0578	36.6	35.6	34.2	36.2	38.2
125	M	21-0545	39.1	40.8	40.5	41.0	42.2
125	M	21-0546	38.8	39.3	38.6	39.0	40.0
500	M	21-0571	37.9	36.5	36.6	37.5	39.5
500	M	21-0572	34.5	35.7	34.4	35.2	35.9
2,000	M	21-0519	38.3	37.3	37.0	38.4	39.8
2,000	M	21-0520	40.4	41.5	38.8	39.1	40.1
125	M	21-0573	33.5	33.1	31.9	31.0	33.3
125	M	21-0574	33.9	32.5	33.2	33.8	33.8
0	M	21-0589	35.7	35.8	36.9	37.4	37.3
0	M	21-0590	35.7	34.1	33.4	33.9	33.5
250	M	21-0581	39.3	38.0	37.0	36.8	37.4

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250	M	21-0582	38.7	38.7	39.4	40.8	44.0
500	M	21-0527	37.7	35.4	34.0	35.4	34.0
500	M	21-0528	35.7	36.7	34.8	35.8	35.8
1,000	M	21-0613	38.2	35.1	35.6	37.2	37.4
1,000	M	21-0614	41.5	39.6	38.9	40.1	39.9
125	M	21-0549	39.1	39.7	39.8	39.6	40.5
125	M	21-0550	40.8	40.1	39.3	40.0	38.9
0	M	21-0611	37.7	36.1	36.3	37.5	37.9
0	M	21-0612	41.3	40.3	39.9	41.3	41.6
500	M	21-0499	37.2	35.5	36.7	36.6	38.0
500	M	21-0500	41.2	41.2	42.4	41.3	42.1
2,000	M	21-0561	42.9	37.9	37.4	40.2	40.0
2,000	M	21-0562	37.5	36.1	30.5	35.5	35.0
1,000	M	21-0597	41.0	38.9	37.1	37.7	37.8
1,000	M	21-0598	36.6	34.9	34.4	34.9	34.5
2	M	21-0505	36.0	35.5	34.6	35.8	37.3
500	M	21-0541	35.1	34.9	33.8	34.5	35.5
500	M	21-0542	44.1	43.6	43.4	45.6	45.7
250	M	21-0497	36.0	35.6	35.5	36.3	36.4
250	M	21-0498	35.3	34.9	34.4	36.8	37.9
125	M	21-0575	38.5	38.2	38.8	39.0	40.4
125	M	21-0576	35.7	35.8	35.3	36.8	35.8
1,000	M	21-0553	35.9	35.6	35.4	36.5	35.7
1,000	M	21-0554	34.7	36.7	36.4	37.5	36.9
0	M	21-0537	35.0	35.2	34.3	35.3	35.6
0	M	21-0538	41.5	41.5	41.2	42.8	41.9
2,000	M	21-0587	37.0	36.3	36.6	36.1	36.2

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2,000	M	21-0588	35.2	36.8	35.9	35.8	37.1
0	M	21-0591	43.2	44.1	42.8	43.3	44.2
0	M	21-0592	37.9	38.5	38.3	39.8	41.0
1,000	M	21-0595	38.5	37.8	38.6	39.7	38.9
1,000	M	21-0596	37.2	35.5	34.0	34.5	33.5
2,000	M	21-0531	41.1	37.7	38.2	38.3	37.4
2,000	M	21-0532	37.7	37.9	35.5	37.2	38.0
500	M	21-0551	35.9	36.9	34.4	36.9	33.7
500	M	21-0552	40.2	39.4	39.4	40.1	39.3
250	M	21-0555	39.5	38.9	39.0	39.2	40.2
250	M	21-0556	37.6	37.9	36.0	37.3	37.1
125	M	21-0523	35.8	35.8	35.8	36.0	36.6
125	M	21-0524	41.4	41.1	41.4	42.6	42.7

Table F-8. Body Weights (g) from 28-day Test with Re-Healing

Dose (mg/kg-d)	Sex	Animal	Day0	Day7	Day14	Day21	Day28
0	F	21-1115	28.5	27.8	28.4	28.6	27.6
0	F	21-1116	30.4	26.8	27.8	28.0	28.8
125	F	21-1055	27.4	28.2	27.5	31.0	32.5
125	F	21-1056	32.5	31.2	31.5	32.9	33.1
2,000	F	21-1091	33.7	32.7	31.5	31.7	33.1
2,000	F	21-1092	28.4	29.8	30.2	29.9	30.4
1,000	F	21-1095	30.6	29.8	30.5	32.2	31.8
1,000	F	21-1096	34.2	30.4	32.5	31.0	31.8
250	F	21-1073	29.9	30.5	28.8	31.0	35.5
250	F	21-1074	31.4	30.9	30.5	36.0	33.6
500	F	21-1045	33.3	36.4	34.9	39.3	37.4
500	F	21-1046	30.6	29.1	35.2	32.8	38.2
1,000	F	21-1087	29.9	32.5	29.8	28.5	30.4
1,000	F	21-1088	24.4	23.6	FD	FD	FD
500	F	21-1111	32.2	31.3	32.8	35.1	36.8
500	F	21-1112	33.3	32.3	33.3	32.2	35.4
0	F	21-1069	31.2	29.4	31.4	32.5	34.4
0	F	21-1070	34.3	31.6	34.4	35.2	42.4
125	F	21-1025	28.3	29.5	31.2	34.0	32.7
125	F	21-1026	30.1	29.1	30.9	30.7	33.7
2,000	F	21-1125	26.7	27.4	25.1	23.7	25.7
2,000	F	21-1126	27.4	27.4	27.7	29.9	30.0
250	F	21-1067	25.9	25.1	24.7	25.8	27.5
250	F	21-1068	35.2	33.7	36.6	35.3	40.0
250	F	21-1101	30.6	30.5	30.6	31.1	35.0

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250	F	21-1102	30.6	30.6	31.4	31.4	32.8
2,000	F	21-1097	31.1	30.1	29.9	29.6	31.2
2,000	F	21-1098	30.8	30.3	29.1	30.3	32.2
1,000	F	21-1117	33.5	31.6	30.8	33.9	37.6
1,000	F	21-1118	28.9	32.4	29.4	29.8	36.9
500	F	21-1041	31.3	29.0	27.4	30.4	29.6
500	F	21-1042	28.4	31.1	30.5	29.2	31.8
125	F	21-1017	28.0	27.3	27.8	30.3	32.5
125	F	21-1018	35.3	34.0	34.7	36.4	41.2
0	F	21-1027	31.6	30.3	30.1	30.7	29.5
0	F	21-1028	31.6	30.7	31.8	32.8	32.2
125	F	21-1085	32.2	32.0	33.5	32.6	36.6
125	F	21-1086	32.0	29.8	30.9	34.7	32.4
0	F	21-1083	33.2	28.5	29.9	29.2	34.9
0	F	21-1084	28.5	26.8	27.0	27.9	29.1
250	F	21-1123	32.2	32.3	32.1	33.8	38.4
250	F	21-1124	33.9	29.7	29.5	34.4	35.5
2,000	F	21-1075	28.5	27.8	27.0	27.5	28.5
2,000	F	21-1076	28.5	27.9	28.1	29.7	30.1
500	F	21-1043	30.4	30.1	27.6	28.8	32.3
500	F	21-1044	31.8	29.6	30.6	32.3	31.8
1,000	F	21-1035	30.5	31.0	32.0	31.5	32.7
1,000	F	21-1036	28.6	29.1	28.4	28.6	30.2
2,000	F	21-1039	32.2	31.2	30.8	31.2	31.5
2,000	F	21-1040	29.2	31.0	30.9	32.5	30.9
250	F	21-1121	26.1	25.9	26.2	26.5	28.4
250	F	21-1122	33.6	31.2	30.2	33.8	32.8

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500	F	21-1109	29.5	28.8	27.9	30.8	30.0
500	F	21-1110	28.0	26.0	27.1	27.5	30.0
0	F	21-1033	33.5	31.1	31.2	35.5	33.9
0	F	21-1034	30.3	29.7	30.4	30.8	32.5
1,000	F	21-1037	30.3	30.5	30.2	32.5	31.0
1,000	F	21-1038	31.8	36.2	33.2	34.5	36.1
125	F	21-1061	29.4	33.2	33.2	31.1	36.2
125	F	21-1062	28.7	26.7	26.2	28.3	27.9
0	M	21-0877	35.1	35.0	34.3	34.5	34.7
0	M	21-0878	36.1	36.5	35.5	35.9	37.2
125	M	21-0827	37.2	36.9	36.1	36.0	37.6
125	M	21-0828	38.1	38.1	38.2	38.5	40.6
2,000	M	21-0831	38.9	40.5	39.2	40.0	40.3
2,000	M	21-0832	38.4	38.3	37.1	37.5	37.6
1,000	M	21-0819	37.0	36.4	36.4	36.3	35.8
1,000	M	21-0820	42.2	41.7	42.2	42.1	41.1
250	M	21-0841	30.3	28.7	28.8	29.6	30.1
250	M	21-0842	42.2	41.4	42.2	42.1	40.4
500	M	21-0809	36.7	35.7	35.8	36.2	36.4
500	M	21-0810	40.1	40.0	39.7	39.6	41.0
1,000	M	21-0843	36.9	38.7	37.5	37.9	39.0
1,000	M	21-0844	37.9	36.5	36.3	35.4	36.2
500	M	21-0777	37.0	37.4	38.5	40.2	40.9
500	M	21-0778	37.1	36.8	35.7	36.4	37.4
0	M	21-0769	31.1	33.0	33.4	32.8	33.4
0	M	21-0770	39.2	40.9	41.2	42.4	44.2
125	M	21-0859	33.7	34.6	34.5	34.7	36.2

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125	M	21-0860	38.7	38.9	38.8	38.5	39.8
2,000	M	21-0869	38.3	37.9	38.3	36.9	36.2
2,000	M	21-0870	36.9	37.5	37.1	37.4	36.3
250	M	21-0833	42.1	43.1	42.8	41.7	44.9
250	M	21-0834	38.7	37.7	39.3	39.3	38.3
250	M	21-0847	37.3	38.5	37.0	38.7	39.8
250	M	21-0848	38.9	38.7	39.5	39.9	39.7
2,000	M	21-0789	33.8	33.4	33.4	FD	FD
2,000	M	21-0790	40.0	38.4	38.5	38.2	39.1
1,000	M	21-0871	37.1	38.4	39.2	40.1	40.1
1,000	M	21-0872	30.8	32.5	32.9	33.3	33.4
500	M	21-0759	35.8	36.6	37.5	39.7	40.4
500	M	21-0760	41.6	41.4	42.0	42.2	42.1
125	M	21-0765	36.5	37.4	36.5	37.4	38.1
125	M	21-0766	40.1	39.9	40.6	41.1	39.3
0	M	21-0813	39.6	39.4	39.1	40.3	39.5
0	M	21-0814	38.6	40.5	39.3	39.9	39.9
125	M	21-0755	37.8	38.3	37.5	37.5	39.1
125	M	21-0756	34.5	35.1	34.7	34.7	34.0
0	M	21-0797	35.0	37.7	36.4	35.1	37.5
0	M	21-0798	36.5	36.4	35.9	36.3	37.0
250	M	21-0817	43.8	42.9	43.1	43.7	43.6
250	M	21-0818	38.2	37.3	37.2	35.6	36.4
2,000	M	21-0835	35.4	35.1	35.6	35.9	33.5
2,000	M	21-0836	41.7	40.7	41.0	41.6	44.0
500	M	21-0823	36.9	37.1	36.4	35.6	36.5
500	M	21-0824	38.7	37.6	37.9	38.4	39.7

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1,000	M	21-0761	42.9	41.6	41.9	30.7	MK
1,000	M	21-0762	35.7	34.4	33.7	33.7	34.0
2,000	M	21-0785	37.7	36.6	37.7	37.7	34.8
2,000	M	21-0786	35.9	33.9	34.8	34.6	33.5
250	M	21-0829	37.4	35.5	36.5	36.5	36.8
250	M	21-0830	35.6	35.2	35.2	35.1	35.7
500	M	21-0799	37.1	37.2	38.5	38.5	38.5
500	M	21-0800	33.5	34.0	34.1	34.1	33.7
0	M	21-0857	34.8	35.1	35.6	36.0	35.3
0	M	21-0858	42.2	41.8	40.8	40.3	40.6
1,000	M	21-0773	38.7	39.3	39.0	39.1	39.6
1,000	M	21-0774	41.1	40.7	41.6	41.5	40.6
125	M	21-0865	41.1	40.0	41.6	42.4	44.1
125	M	21-0866	33.2	33.8	33.8	34.5	34.2

Table F-9. Organ Weights (g) from 28-day Tests

Animal	Dose (mg/kg-d)	Product	Sex	Brain	Adrenal s	Kidney s	Spleen	Heart	Thymus	Liver	Testes	Epis	Uterus	Ovaries
21-0517	500	Avio Green	M	0.487	0.00729	0.544	0.09307	0.222	0.05148	1.816	0.223	0.103	N/A	N/A
21-0518	500	Avio Green	M	0.490	0.00792	0.449	0.07940	0.248	0.06018	1.965	0.284	0.100	N/A	N/A
21-0539	0	Avio Green	M	0.539	0.01274	0.610	0.09012	0.294	0.06491	2.549	0.314	0.128	N/A	N/A
21-0540	0	Avio Green	M	0.507	0.00861	0.493	0.09233	0.219	0.04762	2.063	0.238	0.080	N/A	N/A
21-0593	1,000	Avio Green	M	0.525	0.00716	0.695	0.11939	0.193	0.04579	2.328	0.216	0.103	N/A	N/A
21-0594	1,000	Avio Green	M	0.559	0.00487	0.536	0.07414	0.179	0.04582	2.183	0.206	0.120	N/A	N/A
21-0607	125	Avio Green	M	0.511	0.00651	0.472	0.07814	0.182	0.07227	1.929	0.279	0.104	N/A	N/A
21-0608	125	Avio Green	M	0.545	0.01022	0.633	0.07154	0.227	0.05370	2.336	0.354	0.109	N/A	N/A
21-0610	2,000	Avio Green	M	0.492	0.00762	0.588	0.08751	0.198	0.05744	2.009	0.170	0.129	N/A	N/A
21-0615	250	Avio Green	M	0.530	0.00847	0.688	0.24347	0.240	0.06662	2.403	0.274	0.140	N/A	N/A
21-0616	250	Avio Green	M	0.533	0.00821	0.605	0.07309	0.230	0.04894	1.999	0.239	0.110	N/A	N/A
21-0629	1,000	Avio Green	F	0.521	0.00983	0.364	0.21397	0.171	0.10490	1.832	N/A	N/A	0.184	0.03433
21-0630	1,000	Avio Green	F	0.525	0.01558	0.364	0.10975	0.179	0.09034	1.585	N/A	N/A	0.110	0.03647
21-0651	0	Avio Green	F	0.543	0.01126	0.457	0.11707	0.208	0.06180	2.025	N/A	N/A	0.105	0.04272
21-0652	0	Avio Green	F	0.502	0.01268	0.322	0.11073	0.149	0.06003	1.389	N/A	N/A	0.084	0.06028
21-0655	2,000	Avio Green	F	0.491	0.01319	0.332	0.07295	0.151	0.07949	1.070	N/A	N/A	0.120	0.03328
21-0656	2,000	Avio Green	F	0.470	0.01141	0.308	0.10156	0.159	0.05298	1.212	N/A	N/A	0.111	0.03994
21-0659	250	Avio Green	F	0.549	0.01582	0.376	0.09820	0.167	0.07520	1.471	N/A	N/A	0.183	0.08311
21-0660	250	Avio Green	F	0.499	0.01056	0.357	0.08901	0.157	0.02939	1.054	N/A	N/A	0.177	0.06707

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21-0661	125	Avio Green	F	0.529	0.01180	0.356	0.10386	0.174	0.04507	1.229	N/A	N/A	0.154	0.04326
21-0662	125	Avio Green	F	0.559	0.01563	0.319	0.16129	0.213	0.08052	1.391	N/A	N/A	0.285	0.04690
21-0725	500	Avio Green	F	0.501	0.01029	0.378	0.09723	0.173	0.08665	1.372	N/A	N/A	0.137	0.04478
21-0726	500	Avio Green	F	0.578	0.01063	0.379	0.12588	0.248	0.08073	1.354	N/A	N/A	0.246	0.05411
21-0533	500	Avio Green	M	0.500	0.01073	0.514	0.08762	0.190	0.03965	1.480	0.245	0.09273	N/A	N/A
21-0534	500	Avio Green	M	0.494	0.00670	0.549	0.08763	0.212	0.04831	1.757	0.249	0.08968	N/A	N/A
21-0535	125	Avio Green	M	0.538	0.00643	0.650	0.12847	0.296	0.06328	2.388	0.306	0.10174	N/A	N/A
21-0536	125	Avio Green	M	0.501	0.00921	0.443	0.09834	0.291	0.06744	1.886	0.257	0.11117	N/A	N/A
21-0559	250	Avio Green	M	0.490	0.01127	0.503	0.08999	0.160	0.04734	1.888	0.211	0.12533	N/A	N/A
21-0560	250	Avio Green	M	0.472	0.01168	0.439	0.07330	0.158	0.07978	2.172	0.280	0.11393	N/A	N/A
21-0565	2,000	Avio Green	M	0.520	0.01067	0.545	0.08479	0.182	0.03716	1.951	0.227	0.09921	N/A	N/A
21-0566	2,000	Avio Green	M	0.500	0.00877	0.487	0.09836	0.247	0.05561	1.847	0.219	0.09929	N/A	N/A
21-0583	0	Avio Green	M	0.378	0.00848	0.480	0.07919	0.169	0.04523	1.789	0.302	0.11752	N/A	N/A
21-0584	0	Avio Green	M	0.529	0.01103	0.660	0.08415	0.185	0.05095	1.953	0.263	0.13202	N/A	N/A
21-0605	1,000	Avio Green	M	0.520	0.00908	0.700	0.08078	0.238	0.04845	2.142	0.251	0.09313	N/A	N/A
21-0606	1,000	Avio Green	M	0.489	0.00909	0.483	0.07380	0.200	0.04430	1.667	0.227	0.10654	N/A	N/A
21-0625	500	Avio Green	F	0.554	0.01049	0.359	0.12059	0.161	0.06741	1.694	N/A	N/A	0.104	0.03760
21-0626	500	Avio Green	F	0.525	0.01099	0.365	0.07222	0.166	0.04929	1.404	N/A	N/A	0.198	0.03485
21-0643	0	Avio Green	F	0.531	0.01099	0.333	0.09627	0.152	0.05243	1.508	N/A	N/A	0.205	0.04032
21-0644	0	Avio Green	F	0.491	0.01189	0.360	0.09668	0.164	0.04244	1.406	N/A	N/A	0.111	0.03324
21-0657	2,000	Avio Green	F	0.543	0.00760	0.410	0.10039	0.190	0.04977	1.403	N/A	N/A	0.133	0.03092

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21-0658	2,000	Avio Green	F	0.495	0.01355	0.342	0.09688	0.152	0.04140	1.287	N/A	N/A	0.083	0.03941
21-0675	250	Avio Green	F	0.504	0.01116	0.366	0.11374	0.172	0.05151	1.515	N/A	N/A	0.112	0.07930
21-0676	250	Avio Green	F	0.515	0.01230	0.402	0.08315	0.146	0.03667	1.560	N/A	N/A	0.105	0.10566
21-0681	125	Avio Green	F	0.524	0.01164	0.343	0.09175	0.145	0.05299	1.273	N/A	N/A	0.144	0.04672
21-0682	125	Avio Green	F	0.556	0.01143	0.425	0.11564	0.177	0.07300	1.484	N/A	N/A	0.225	0.07791
21-0741	1,000	Avio Green	F	0.559	0.01216	0.371	0.10618	0.151	0.07147	1.421	N/A	N/A	0.095	0.04636
21-0742	1,000	Avio Green	F	0.548	0.01078	0.416	0.13704	0.160	0.06915	1.458	N/A	N/A	0.160	0.04864
21-0507	2,000	Avio Green	M	0.501	0.00786	0.615	0.08867	0.271	0.05460	2.292	0.252	0.11718	N/A	N/A
21-0508	2,000	Avio Green	M	0.505	0.00958	0.529	0.08748	0.223	0.03642	2.281	0.228	0.11225	N/A	N/A
21-0525	1,000	Avio Green	M	0.482	0.00907	0.572	0.07844	0.183	0.07752	2.010	0.195	0.10637	N/A	N/A
21-0526	1,000	Avio Green	M	0.513	0.00836	0.675	0.06748	0.218	0.04890	2.133	0.276	0.10615	N/A	N/A
21-0547	125	Avio Green	M	0.540	0.00861	0.529	0.08367	0.241	0.05573	1.801	0.297	0.12590	N/A	N/A
21-0548	125	Avio Green	M	0.535	0.01019	0.597	0.07768	0.188	0.05402	2.225	0.243	0.10010	N/A	N/A
21-0557	250	Avio Green	M	0.509	0.01529	0.559	0.10499	0.211	0.04762	1.907	0.297	0.12634	N/A	N/A
21-0558	250	Avio Green	M	0.498	0.01004	0.523	0.06435	0.194	0.05318	1.937	0.275	0.10369	N/A	N/A
21-0579	500	Avio Green	M	0.462	0.01127	0.557	0.07087	0.217	0.06098	1.889	0.291	0.12766	N/A	N/A
21-0580	500	Avio Green	M	0.502	0.00542	0.593	0.08764	0.206	0.04517	1.876	0.238	0.11743	N/A	N/A
21-0601	0	Avio Green	M	0.519	0.00978	0.553	0.1,000 6	0.208	0.02248	2.057	0.327	0.11849	N/A	N/A
21-0602	0	Avio Green	M	0.539	0.01059	0.587	0.08960	0.224	0.03791	2.199	0.303	0.12249	N/A	N/A
21-0627	1,000	Avio Green	F	0.571	0.01394	0.413	0.10024	0.190	0.08134	1.822	N/A	N/A	0.173	0.04347
21-0628	1,000	Avio Green	F	0.522	0.01347	0.410	0.09419	0.205	0.04273	1.478	N/A	N/A	0.216	0.04955

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21-0641	125	Avio Green	F	0.550	0.00978	0.397	0.09481	0.195	0.05490	1.878	N/A	N/A	0.137	0.04980
21-0642	125	Avio Green	F	0.493	0.01187	0.324	0.07159	0.159	0.03613	1.366	N/A	N/A	0.136	0.05614
21-0647	500	Avio Green	F	0.497	0.01136	0.301	0.10576	0.180	0.05302	1.229	N/A	N/A	0.349	0.04174
21-0648	500	Avio Green	F	0.548	0.01124	0.438	0.12347	0.183	0.04420	1.973	N/A	N/A	0.128	0.04850
21-0729	2,000	Avio Green	F	0.526	0.01035	0.374	0.13465	0.168	0.03976	1.669	N/A	N/A	0.240	0.04837
21-0730	2,000	Avio Green	F	0.523	0.01301	0.387	0.11118	0.163	0.06073	1.644	N/A	N/A	0.212	0.06011
21-0731	250	Avio Green	F	0.495	0.01070	0.384	0.10968	0.185	0.07346	1.634	N/A	N/A	0.326	0.04302
21-0732	250	Avio Green	F	0.498	0.01008	0.339	0.07520	0.155	0.03583	1.225	N/A	N/A	0.078	0.04378
21-0735	0	Avio Green	F	0.482	0.01229	0.316	0.10156	0.143	0.04951	1.371	N/A	N/A	0.081	0.04067
21-0736	0	Avio Green	F	0.518	0.00879	0.369	0.09130	0.147	0.04134	1.329	N/A	N/A	0.098	0.04016
21-0503	2,000	Avio Green	M	0.481	0.00873	0.416	0.10335	0.209	0.05585	2.270	0.281	0.14122	N/A	N/A
21-0504	2,000	Avio Green	M	0.522	0.00943	0.593	0.07496	0.192	0.04180	2.220	0.298	0.12777	N/A	N/A
21-0513	250	Avio Green	M	0.481	0.01099	0.478	0.06664	0.171	0.05069	1.795	0.287	0.10360	N/A	N/A
21-0514	250	Avio Green	M	0.496	0.00911	0.545	0.08282	0.169	0.04793	1.921	0.272	0.11091	N/A	N/A
21-0515	125	Avio Green	M	0.507	0.01275	0.709	0.08453	0.228	0.06229	2.183	0.116	0.09260	N/A	N/A
21-0516	125	Avio Green	M	0.539	0.01326	0.618	0.12050	0.212	0.05466	2.165	0.333	0.15597	N/A	N/A
21-0521	500	Avio Green	M	0.495	0.00805	0.504	0.09403	0.238	0.04263	1.958	0.281	0.10331	N/A	N/A
21-0522	500	Avio Green	M	0.513	0.01169	0.650	0.16545	0.204	0.06294	2.218	0.322	0.11614	N/A	N/A
21-0529	0	Avio Green	M	0.520	0.00799	0.595	0.09211	0.223	0.05234	2.001	0.281	0.11795	N/A	N/A
21-0530	0	Avio Green	M	0.496	0.00932	0.602	0.09860	0.189	0.05382	2.177	0.272	0.11335	N/A	N/A
21-0543	1,000	Avio Green	M	0.505	0.00841	0.632	0.08573	0.261	0.03032	2.134	0.243	0.13443	N/A	N/A

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21-0544	1,000	Avio Green	M	0.490	0.01182	0.522	0.07541	0.265	0.04200	1.934	0.283	0.10510	N/A	N/A
21-0649	1,000	Avio Green	F	0.473	0.01108	0.310	0.13145	0.175	0.04023	1.321	N/A	N/A	0.087	0.03375
21-0650	1,000	Avio Green	F	0.513	0.01364	0.426	0.12390	0.170	0.06637	1.457	N/A	N/A	0.248	0.05478
21-0683	250	Avio Green	F	0.485	0.01141	0.303	0.08351	0.142	0.03876	1.105	N/A	N/A	0.117	0.03150
21-0684	250	Avio Green	F	0.500	0.01326	0.344	0.08029	0.164	0.08022	1.410	N/A	N/A	0.142	0.05411
21-0713	500	Avio Green	F	0.535	0.01380	0.349	0.08863	0.212	0.05188	1.502	N/A	N/A	0.110	0.03492
21-0714	500	Avio Green	F	0.524	0.01117	0.338	0.09117	0.163	0.05710	1.379	N/A	N/A	0.121	0.04315
21-0717	2,000	Avio Green	F	0.453	0.00935	0.328	0.09520	0.145	0.06003	1.269	N/A	N/A	0.149	0.05052
21-0718	2,000	Avio Green	F	0.512	0.01122	0.366	0.09349	0.148	0.06400	1.445	N/A	N/A	0.284	0.05146
21-0721	125	Avio Green	F	0.460	0.01054	0.307	0.09186	0.144	0.05756	1.123	N/A	N/A	0.076	0.05845
21-0722	125	Avio Green	F	0.512	0.01132	0.351	0.08968	0.158	0.05526	1.372	N/A	N/A	0.225	0.06136
21-0737	0	Avio Green	F	0.516	0.01478	0.334	0.10536	0.172	0.06230	1.342	N/A	N/A	0.135	0.04502
21-0738	0	Avio Green	F	0.557	0.01833	0.425	0.13309	0.168	0.06481	1.659	N/A	N/A	0.201	0.06474
21-0501	500	Avio Green	M										N/A	N/A
21-0502	500	Avio Green	M	0.528	0.01007	0.614	0.11188	0.182	0.03948	2.097	0.256	0.12744	N/A	N/A
21-0509	0	Avio Green	M	0.489	0.01144	0.575	0.07906	0.198	0.05745	2.151	0.225	0.11518	N/A	N/A
21-0510	0	Avio Green	M	0.485	0.00947	0.737	0.07830	0.196	0.05530	2.018	0.247	0.12559	N/A	N/A
21-0563	250	Avio Green	M	0.501	0.01100	0.776	0.07150	0.261	0.03773	1.934	0.230	0.11022	N/A	N/A
21-0564	250	Avio Green	M	0.497	0.01201	0.572	0.12277	0.208	0.03758	1.787	0.225	0.09209	N/A	N/A
21-0567	125	Avio Green	M	0.496	0.00828	0.767	0.07832	0.266	0.03165	2.017	0.247	0.10457	N/A	N/A
21-0568	125	Avio Green	M	0.477	0.01199	0.556	0.08750	0.194	0.05040	1.806	0.279	0.10832	N/A	N/A

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21-0599	2,000	Avio Green	M	0.551	0.01076	0.546	0.09664	0.213	0.06258	2.186	0.232	0.11519	N/A	N/A
21-0603	1,000	Avio Green	M	0.532	0.01005	0.621	0.07748	0.206	0.03930	2.325	0.349	0.11950	N/A	N/A
21-0604	1,000	Avio Green	M	0.523	0.01147	0.694	0.06903	0.243	0.03162	2.131	0.174	0.10474	N/A	N/A
21-0663	125	Avio Green	F	0.535	0.01273	0.388	0.15267	0.161	0.06884	1.852	N/A	N/A	0.121	0.05483
21-0664	125	Avio Green	F	0.535	0.01135	0.381	0.09505	0.180	0.04291	1.485	N/A	N/A	0.104	0.06290
21-0665		Avio Green	F								N/A	N/A		
21-0666	2,000	Avio Green	F	0.548	0.01200	0.407	0.09869	0.160	0.05376	1.433	N/A	N/A	0.212	0.04932
21-0671	500	Avio Green	F	0.525	0.01328	0.390	0.10543	0.183	0.05601	1.459	N/A	N/A	0.158	0.05957
21-0672	500	Avio Green	F	0.488	0.01668	0.359	0.10320	0.154	0.04635	1.449	N/A	N/A	0.208	0.04153
21-0699	250	Avio Green	F	0.546	0.01320	0.378	0.11032	0.179	0.05811	1.558	N/A	N/A	0.136	0.06555
21-0700	250	Avio Green	F	0.505	0.01218	0.358	0.14799	0.206	0.04271	1.246	N/A	N/A	0.162	0.04013
21-0723	1,000	Avio Green	F	0.489	0.01378	0.361	0.10314	0.210	0.05608	1.710	N/A	N/A	0.090	0.04487
21-0724	1,000	Avio Green	F	0.477	0.01099	0.300	0.09781	0.166	0.04230	1.439	N/A	N/A	0.064	0.03082
21-0739	0	Avio Green	F	0.518	0.01165	0.349	0.11448	0.180	0.03801	1.413	N/A	N/A	0.113	0.05593
21-0740	0	Avio Green	F	0.533	0.01221	0.317	0.13392	0.160	0.05023	1.552	N/A	N/A	0.109	0.03407
21-1375	250	Buckeye	M	0.522	0.00683	0.534	0.09240	0.209	0.04866	1.723	0.237	0.10418	N/A	N/A
21-1376	250	Buckeye	M	0.493	0.00506	0.593	0.09955	0.189	0.04929	1.752	0.279	0.10224	N/A	N/A
21-1405	2,000	Buckeye	M	0.473	0.00732	0.455	0.07439	0.193	0.03647	1.868	0.229	0.09627	N/A	N/A
21-1406	2,000	Buckeye	M	0.473	0.00800	0.492	0.09876	0.169	0.04897	1.887	0.251	0.10270	N/A	N/A
21-1409	500	Buckeye	M	0.469	0.00683	0.421	0.05993	0.155	0.03620	1.417	0.192	0.10378	N/A	N/A
21-1410	500	Buckeye	M	0.499	0.00875	0.478	0.07374	0.180	0.05265	1.671	0.259	0.07950	N/A	N/A

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21-1415	1,000	Buckeye	M	0.529	0.00728	0.639	0.09324	0.230	0.03966	2.080	0.235	0.09994	N/A	N/A
21-1416	1,000	Buckeye	M	0.518	0.00891	0.639	0.06921	0.195	0.03701	2.139	0.241	0.10578	N/A	N/A
21-1417	0	Buckeye	M	0.515	0.00691	0.483	0.06224	0.191	0.04541	1.420	0.304	0.11050	N/A	N/A
21-1418	0	Buckeye	M	0.549	0.00881	0.794	0.11351	0.249	0.05392	1.834	0.232	0.10152	N/A	N/A
21-1425	125	Buckeye	M	0.498	0.00744	0.639	0.08847	0.190	0.04793	1.740	0.221	0.09345	N/A	N/A
21-1426	125	Buckeye	M	0.500	0.00759	0.469	0.07329	0.169	0.05687	1.495	0.254	0.09232	N/A	N/A
21-1443	1,000	Buckeye	F	0.544	0.01032	0.346	0.08363	0.139	0.06520		N/A	N/A	0.198	0.02560
21-1444	1,000	Buckeye	F	0.492	0.00888	0.298	0.09674	0.152	0.07094	1.324	N/A	N/A	0.103	0.02925
21-1455	0	Buckeye	F	0.515	0.01053	0.319	0.10735	0.142	0.04302	1.137	N/A	N/A	0.137	0.03715
21-1456	0	Buckeye	F	0.494	0.01072	0.289	0.08573	0.145	0.04090	1.132	N/A	N/A	0.244	0.02872
21-1457	250	Buckeye	F	0.451	0.01139	0.332	0.08591	0.143	0.06212	1.271	N/A	N/A	0.359	0.03419
21-1458	250	Buckeye	F	0.539	0.01064	0.476	0.13009	0.175	0.03566	1.725	N/A	N/A	0.269	0.03460
21-1463	2,000	Buckeye	F	0.529	0.01040	0.387	0.12789	0.144	0.05783	1.406	N/A	N/A	0.153	0.04097
21-1464	2,000	Buckeye	F	0.537	0.01302	0.392	0.13115	0.156	0.06830	1.636	N/A	N/A	0.215	0.02725
21-1485	500	Buckeye	F	0.522	0.01112	0.341	0.10132	0.147	0.04997	1.260	N/A	N/A	0.153	0.03339
21-1486	500	Buckeye	F	0.484	0.01217	0.353	0.16790	0.190	0.05838	1.493	N/A	N/A	0.199	0.03193
21-1493	125	Buckeye	F	0.516	0.01020	0.329	0.10551	0.183	0.08455	1.192	N/A	N/A	0.154	0.02767
21-1494	125	Buckeye	F	0.527	0.01502	0.364	0.14061	0.221	0.06097	1.603	N/A	N/A	0.198	0.04005
21-1377	250	Buckeye	M	0.503	0.00719	0.592	0.08989	0.200	0.05309	2.104	0.257	0.10484	N/A	N/A
21-1378	250	Buckeye	M	0.496	0.00773	0.579	0.11236	0.229	0.04258	1.733	0.189	0.08178	N/A	N/A
21-1379	1,000	Buckeye	M	0.522	0.00725	0.683	0.09039	0.203	0.04023	2.053	0.278	0.10605	N/A	N/A

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21-1380	1,000	Buckeye	M	0.539	0.00822	0.675	0.11081	0.217	0.06483	2.179	0.250	0.11748	N/A	N/A
21-1383	125	Buckeye	M	0.513	0.00902	0.745	0.08345	0.208	0.03472	1.752	0.264	0.11143	N/A	N/A
21-1384	125	Buckeye	M	0.552	0.00979	0.628	0.08332	0.256	0.04897	1.890	0.248	0.10875	N/A	N/A
21-1385	0	Buckeye	M	0.529	0.00896	0.597	0.08813	0.202	0.04716	1.559	0.186	0.09032	N/A	N/A
21-1386	0	Buckeye	M	0.579	0.00948	0.783	0.14672	0.246	0.05699	2.382	0.206	0.11869	N/A	N/A
21-1407	2,000	Buckeye	M	0.537	0.00770	0.618	0.08078	0.202	0.04415	2.449	0.280	0.10133	N/A	N/A
21-1408	2,000	Buckeye	M	0.522	0.00763	0.614	0.07900	0.199	0.03668	1.959	0.225	0.11905	N/A	N/A
21-1421	500	Buckeye	M	0.539	0.00850	0.603	0.10362	0.236	0.04638	2.153	0.270	0.10479	N/A	N/A
21-1422	500	Buckeye	M	0.521	0.00767	0.642	0.10522	0.213	0.04522	2.064	0.271	0.11185	N/A	N/A
21-1441	500	Buckeye	F	0.522	0.00896	0.345	0.13578	0.156	0.07163	1.151	N/A	N/A	0.200	0.03946
21-1442	500	Buckeye	F	0.525	0.01032	0.328	0.11612	0.155	0.04901	1.331	N/A	N/A	0.218	0.10472
21-1467	1,000	Buckeye	F	0.515	0.00982	0.376	0.10481	0.172	0.07296	1.207	N/A	N/A	0.238	0.04598
21-1468	1,000	Buckeye	F	0.514	0.01055	0.397	0.11067	0.163	0.05475	1.258	N/A	N/A	0.097	0.04744
21-1469	125	Buckeye	F	0.515	0.00965	0.334	0.08821	0.152	0.05696	1.093	N/A	N/A	0.151	0.03400
21-1470	125	Buckeye	F	0.523	0.01359	0.398	0.09662	0.186	0.05202	1.239	N/A	N/A	0.201	0.04667
21-1473	2,000	Buckeye	F	0.493	0.01252	0.302	0.09428	0.185	0.03769	1.342	N/A	N/A	0.250	0.04868
21-1474	2,000	Buckeye	F	0.519	0.00848	0.371	0.10359	0.153	0.05174	1.224	N/A	N/A	0.098	0.03571
21-1487	0	Buckeye	F	0.539	0.01012	0.362	0.07859	0.142	0.04992	1.308	N/A	N/A	0.198	0.04709
21-1488	0	Buckeye	F	0.484	0.01358	0.325	0.08002	0.168	0.09093	1.325	N/A	N/A	0.243	0.04429
21-1497	250	Buckeye	F	0.549	0.01711	0.408	0.13635	0.172	0.04660	1.278	N/A	N/A	0.139	0.04071
21-1498	250	Buckeye	F	0.527	0.01072	0.348	0.07003	0.153	0.03519	1.147	N/A	N/A	0.376	0.03372

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21-1391	0	Buckeye	M	0.543	0.00797	0.585	0.092	0.214	0.04253	1.706	0.2708 3	0.11658	N/A	N/A
21-1392	0	Buckeye	M	0.563	0.01040	0.675	0.111	0.238	0.07786	2.068	0.2658 1	0.10616	N/A	N/A
21-1401	250	Buckeye	M	0.469	0.00714	0.558	0.079	0.197	0.04865	1.790	0.2440 0	0.09208	N/A	N/A
21-1402	250	Buckeye	M	0.511	0.00800	0.618	0.072	0.180	0.04291	1.793	0.2412 0	0.10337	N/A	N/A
21-1413	500	Buckeye	M	0.545	0.01061	0.682	0.083	0.276	0.04302	2.282	0.2756 3	0.11712	N/A	N/A
21-1414	500	Buckeye	M	0.503	0.639	0.636	0.084	0.191	0.04011	1.619	0.2984 8	0.10717	N/A	N/A
21-1429	1,000	Buckeye	M	0.512	0.00772	0.650	0.078	0.229	0.06542	2.133	0.2534 1	0.10688	N/A	N/A
21-1430	1,000	Buckeye	M	0.521	0.00730	0.641	0.077	0.240	0.04260	2.173	0.2789 6	0.09640	N/A	N/A
21-1433	125	Buckeye	M	0.523	0.00864	0.658	0.080	0.258	0.03930	1.510	0.2574 9	0.09597	N/A	N/A
21-1434	125	Buckeye	M	0.534	0.00742	0.671	0.103	0.224	0.04468	1.875	0.2474 6	0.11426	N/A	N/A
21-1435	2,000	Buckeye	M	0.540	0.00755	0.595	0.075	0.265	0.03830	1.826	0.2345 0	0.09543	N/A	N/A
21-1436	2,000	Buckeye	M	0.541	0.00831	0.747	0.098	0.198	0.06590	2.386	0.3069 5	0.11530	N/A	N/A
21-1449	500	Buckeye	F	0.523	0.01109	0.361	0.142	0.154	0.05443	1.560	N/A	N/A	0.16989	0.03470
21-1450	500	Buckeye	F	0.589	0.01169	0.393	0.089	0.176	0.05791	1.563	N/A	N/A	0.20163	0.04114
21-1451	250	Buckeye	F	0.502	0.01374	0.336	0.079	0.201	0.03714	1.042	N/A	N/A	0.15077	0.04209

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21-1452	250	Buckeye	F	0.530	0.00999	0.397	0.130	0.176	0.08078	1.108	N/A	N/A	0.26568	0.04110
21-1465	1,000	Buckeye	F	0.543	0.01565	0.423	0.156	0.166	0.07644	1.785	N/A	N/A	0.09918	0.03361
21-1466	1,000	Buckeye	F	0.567	0.01272	0.384	0.095	0.221	0.05069	1.479	N/A	N/A	0.23644	0.04519
21-1471	125	Buckeye	F	0.488	0.01030	0.343	0.099	0.141	0.05314	1.053	N/A	N/A	0.10452	0.03197
21-1472	125	Buckeye	F	0.525	0.01206	0.320	0.083	0.153	0.04548	1.022	N/A	N/A	0.15811	0.03616
21-1479	2,000	Buckeye	F	0.531	0.01338	0.385	0.100	0.166	0.06812	1.440	N/A	N/A	0.22771	0.05265
21-1480	2,000	Buckeye	F	0.501	0.00986	0.322	0.103	0.126	0.05334	1.177	N/A	N/A	0.22845	0.03872
21-1491	0	Buckeye	F	0.520	0.01190	0.282	0.076	0.157	0.04304	0.988	N/A	N/A	0.11017	0.03255
21-1492	0	Buckeye	F	0.566	0.01053	0.363	0.140	0.135	0.07541	1.342	N/A	N/A	0.18721	0.03501
21-1381	2,000	Buckeye	M	0.540	0.00944	0.629	0.082	0.184	0.04590	1.833	0.2970 9	0.10407	N/A	N/A
21-1382	2,000	Buckeye	M	0.513	0.00915	0.622	0.094	0.204	0.04820	2.372	0.2427 3	0.04606	N/A	N/A
21-1393	500	Buckeye	M	0.475	0.00924	0.580	0.104	0.194	0.04799	1.993	0.2332 5	0.13756	N/A	N/A
21-1394	500	Buckeye	M	0.530	0.00930	0.605	0.080	0.249	0.05574	1.809	0.2262 1	0.11885	N/A	N/A
21-1399	125	Buckeye	M	0.512	0.01089	0.710	0.078	0.322	0.04803	2.281	0.3190 5	0.12220	N/A	N/A
21-1400	125	Buckeye	M	0.553	0.01299	0.677	0.081	0.208	0.03614	1.824	0.2495 9	0.09738	N/A	N/A
21-1411	250	Buckeye	M	0.518	0.01041	0.793	0.071	0.277	0.05220	2.245	0.2467 8	0.12253	N/A	N/A
21-1412	250	Buckeye	M	0.522	0.00829	0.637	0.086	0.199	0.04118	1.587	0.2355 1	0.09555	N/A	N/A

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21-1419	0	Buckeye	M	0.539	0.00771	0.778	0.109	0.219	0.07079	2.146	0.24464	0.10581	N/A	N/A
21-1420	0	Buckeye	M	0.512	0.00831	0.670	0.109	0.263	0.05226	1.711	0.30151	0.12206	N/A	N/A
21-1423	1,000	Buckeye	M	0.521	0.00801	0.549	0.058	0.203	0.03619	1.600	0.25759	0.12088	N/A	N/A
21-1424	1,000	Buckeye	M	0.531	0.00994	0.797	0.114	0.235	0.04392	2.395	0.32349	0.12728	N/A	N/A
21-1447	0	Buckeye	F	0.514	0.01474	0.294	0.068	0.131	0.04263	0.876	N/A	N/A	0.08582	0.03921
21-1448	0	Buckeye	F	0.511	0.01294	0.298	0.110	0.150	0.06955	1.049	N/A	N/A	0.31472	0.03536
21-1453	2,000	Buckeye	F	0.504	0.01479	0.371	0.133	0.194	0.07766	1.546	N/A	N/A	0.18572	0.04891
21-1454	2,000	Buckeye	F	0.512	0.01007	0.389	0.128	0.182	0.07673	1.536	N/A	N/A	0.12469	0.04199
21-1461	500	Buckeye	F	0.538	0.00855	0.292	0.073	0.136	0.09237	1.097	N/A	N/A	0.11341	0.03408
21-1462	500	Buckeye	F	0.514	0.00865	0.329	0.087	0.135	0.03628	1.113	N/A	N/A	0.12429	0.05096
21-1477	125	Buckeye	F	0.514	0.01621	0.409	0.119	0.172	0.07038	1.374	N/A	N/A	0.16409	0.04570
21-1478	125	Buckeye	F	0.473	0.01421	0.335	0.104	0.158	0.03974	1.229	N/A	N/A	0.11737	0.03905
21-1483	250	Buckeye	F	0.511	0.01198	0.371	0.194	0.170	0.07672	1.565	N/A	N/A	0.10224	0.04893
21-1484	250	Buckeye	F	0.571	0.01207	0.370	0.118	0.167	0.05054	1.152	N/A	N/A	0.13764	0.04694
21-1489	1,000	Buckeye	F	0.555	0.01259	0.361	0.107	0.144	0.07129	1.080	N/A	N/A	0.17861	0.04785
21-1490	1,000	Buckeye	F	0.528	0.01073	0.291	0.097	0.144	0.04416	1.052	N/A	N/A	0.21262	0.03528
21-1387	0	Buckeye	M	0.465	0.01099	0.493	0.090	0.203	0.05557	1.590	0.21896	0.09868	N/A	N/A
21-1388	0	Buckeye	M	0.514	0.00732	0.481	0.080	0.280	0.03697	1.396	0.27246	0.09926	N/A	N/A

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21-1389	2,000	Buckeye	M	0.483	0.00869	0.635	0.089	0.247	0.02550	2.153	0.24308	0.10405	N/A	N/A
21-1390	2,000	Buckeye	M	0.530	0.00989	0.769	0.101	0.234	0.03080	2.267	0.23149	0.11502	N/A	N/A
21-1395	1,000	Buckeye	M	0.482	0.00639	0.516	0.087	0.165	0.04353	1.653	0.23204	0.08645	N/A	N/A
21-1396	1,000	Buckeye	M	0.539	0.00621	0.607	0.088	0.224	0.04267	2.111	0.22093	0.09212	N/A	N/A
21-1397	125	Buckeye	M	0.523	0.00955	0.559	0.087	0.203	0.04570	1.631	0.24555	0.09528	N/A	N/A
21-1398	125	Buckeye	M	0.555	0.00962	0.750	0.084	0.246	0.04134	1.767	0.28051	0.11134	N/A	N/A
21-1431	500	Buckeye	M	0.515	0.00913	0.605	0.090	0.220	0.05610	2.282	0.21172	0.09618	N/A	N/A
21-1432	500	Buckeye	M	0.547	0.00943	0.703	0.099	0.222	0.06514	2.156	0.25596	0.11928	N/A	N/A
21-1439	250	Buckeye	M	0.546	0.01159	0.652	0.073	0.207	0.03817	1.752	0.23749	0.09783	N/A	N/A
21-1440	250	Buckeye	M	0.557	0.00700	0.689	0.081	0.227	0.03386	1.694	0.26590	0.11480	N/A	N/A
21-1445	125	Buckeye	F	0.549	0.01195	0.364	0.096	0.168	0.05045	0.985	N/A	N/A	0.23891	0.02802
21-1446	125	Buckeye	F	0.518	0.00907	0.384	0.078	0.145	0.04335	1.002	N/A	N/A	0.22982	0.03465
21-1459	1,000	Buckeye	F	0.494	0.00906	0.441	0.090	0.177	0.04078	1.519	N/A	N/A	0.11967	0.06972
21-1460	1,000	Buckeye	F	0.557	0.01304	0.357	0.100	0.183	0.05494	1.236	N/A	N/A	0.15438	0.04170
21-1475	2,000	Buckeye	F	0.539	0.01295	0.331	0.076	0.191	0.06800	1.099	N/A	N/A	0.12168	0.02437
21-1476	2,000	Buckeye	F	0.514	0.01033	0.322	0.095	0.149	0.05336	1.072	N/A	N/A	0.17852	0.03290

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21-1481	500	Buckeye	F	0.521	0.01657	0.386	0.127	0.179	0.05049	1.656	N/A	N/A	0.24151	0.05199
21-1482	500	Buckeye	F	0.466	0.01484	0.363	0.084	0.149	0.04999	1.206	N/A	N/A	0.19497	0.05440
21-1495	0	Buckeye	F	0.516	0.01389	0.340	0.149	0.174	0.06032	1.479	N/A	N/A	0.11471	0.04201
21-1496	0	Buckeye	F	0.530	0.01264	0.351	0.110	0.195	0.04465	1.450	N/A	N/A	0.21583	0.04227
21-1499	250	Buckeye	F	0.503	0.01632	0.363	0.156	0.206	0.03415	1.413	N/A	N/A	0.12614	0.04572
21-1500	250	Buckeye	F	0.516	0.01194	0.391	0.082	0.147	0.05922	1.093	N/A	N/A	0.10955	0.03858
21-0763	1,000	ECOPOL A	M	0.484	0.01,000	0.525	0.068	0.173	0.05279	1.901	0.2895	0.1205	N/A	N/A
21-0764	1,000	ECOPOL A	M	0.499	0.00984	0.614	0.079	0.180	0.05074	1.798	0.2679 5	0.12256	N/A	N/A
21-0767	500	ECOPOL A	M	0.497	0.00894	0.547	0.104	0.200	0.06699	2.027	0.3066 8	0.11093	N/A	N/A
21-0768	500	ECOPOL A	M	0.504	0.00567	0.525	0.94	0.181	0.04398	1.772	0.2797 8	0.11606	N/A	N/A
21-0771	250	ECOPOL A	M	0.484	0.00618	0.482	0.092	0.193	0.06900	1.977	0.2439 8	0.11459	N/A	N/A
21-0772	250	ECOPOL A	M	0.510	0.00714	0.600	0.081	0.199	0.05347	1.995	0.2691 0	0.10947	N/A	N/A
21-0803	2,000	ECOPOL A	M	0.480	0.00914	0.529	0.074	0.194	0.03326	1.718	0.1750 1	0.10151	N/A	N/A
21-0804	2,000	ECOPOL A	M	0.493	0.01038	0.514	0.080	0.194	0.03728	1.727	0.2144 4	0.07978	N/A	N/A
21-0821	0	ECOPOL A	M	0.504	0.00598	0.541	0.096	0.196	0.03369	1.976	0.2528 0	0.10946	N/A	N/A
21-0822	0	ECOPOL A	M	0.484	0.00839	0.565	0.095	0.177	0.05680	1.907	0.2563 4	0.10289	N/A	N/A

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21-0837	125	ECOPOL A	M	0.519	0.00678	0.583	0.067	0.190	0.04238	1.936	0.28575	0.11099	N/A	N/A
21-0838	125	ECOPOL A	M	0.481	0.01076	0.546	0.086	0.251	0.05036	1.988	0.26328	0.12045	N/A	N/A
21-1019	125	ECOPOL A	F	0.573	0.01222	0.476	0.220	0.240	0.06268	2.100	N/A	N/A	0.36283	0.05869
21-1020	125	ECOPOL A	F	0.536	0.01268	0.449	0.119	0.182	0.04024	1.928	N/A	N/A	0.26836	0.06903
21-1021	1,000	ECOPOL A	F	0.520	0.01284	0.390	0.090	0.205	0.04313	1.421	N/A	N/A	0.22346	0.07045
21-1022	1,000	ECOPOL A	F	0.506	0.01134	0.327	0.084	0.133	0.03825	1.116	N/A	N/A	0.14498	0.0677
21-1023	250	ECOPOL A	F	0.499	0.01011	0.370	0.074	0.198	0.09400	1.393	N/A	N/A	0.11102	0.05041
21-1024	250	ECOPOL A	F	0.473	0.01130	0.425	0.097	0.176	0.07520	1.475	N/A	N/A	0.20353	0.04451
21-1053	2,000	ECOPOL A	F	0.532	0.01603	0.468	0.133	0.192	0.06593	2.010	N/A	N/A	0.17450	0.06203
21-1054	2,000	ECOPOL A	F	0.544	0.01135	0.432	0.090	0.241	0.08522	1.686	N/A	N/A	0.23462	0.04699
21-1059	0	ECOPOL A	F	0.493	0.00796	0.366	0.099	0.168	0.05412	1.406	N/A	N/A	0.19218	0.04992
21-1060	0	ECOPOL A	F	0.531	0.01078	0.378	0.104	0.164	0.04735	1.419	N/A	N/A	0.12724	0.05423
21-1089	500	ECOPOL A	F	0.541	0.00861	0.405	0.137	0.173	0.03799	1.665	N/A	N/A	0.13355	0.05283
21-1090	500	ECOPOL A	F	0.532	0.01163	0.322	0.118	0.133	0.05404	1.329	N/A	N/A	0.16621	0.05952
21-0793	1,000	ECOPOL A	M											
21-0794	1,000	ECOPOL A	M	0.508	0.00736	0.589	0.069	0.184	0.03744	1.851	0.26297	0.12568	N/A	N/A
21-0815	0	ECOPOL A	M	0.516	0.00823	0.643	0.088	0.216	0.03776	2.152	0.23308	0.11397	N/A	N/A
21-0816	0	ECOPOL A	M	0.481	0.00813	0.583	0.085	0.191	0.06118	1.932	0.26150	0.12064	N/A	N/A

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21-0845	500	ECOPOL A	M	0.485	0.00829	0.466	0.086	0.230	0.04040	1.337	0.31873	0.11113	N/A	N/A
21-0846	500	ECOPOL A	M	0.489	0.00796	0.498	0.057	0.191	0.05279	1.355	0.26069	0.09574	N/A	N/A
21-0851	250	ECOPOL A	M	0.577	0.00606	0.670	0.078	0.227	0.05221	2.288	0.28654	0.11258	N/A	N/A
21-0852	250	ECOPOL A	M	0.502	0.00611	0.493	0.075	0.194	0.04749	1.494	0.21504	0.09989	N/A	N/A
21-0861	2,000	ECOPOL A	M	0.597	0.00773	0.458	0.061	0.215	0.02813	1.494	0.15956	0.09607	N/A	N/A
21-0862	2,000	ECOPOL A	M	0.490	0.00894	0.560	0.053	0.179	0.01826	1.523	0.26813	0.11716	N/A	N/A
21-0879	125	ECOPOL A	M	0.529	0.00653	0.589	0.098	0.195	0.05176	2.091	0.23821	0.09579	N/A	N/A
21-0880	125	ECOPOL A	M	0.550	0.00890	0.615	0.097	0.266	0.04921	2.351	0.25769	0.09713	N/A	N/A
21-1013	125	ECOPOL A	F	0.526	0.01254	0.366	0.100	0.251	0.07106	1.476	N/A	N/A	0.23866	0.04905
21-1014	125	ECOPOL A	F	0.573	0.01160	0.489	0.171	0.224	0.07208	2.251	N/A	N/A	0.19523	0.04987
21-1029	250	ECOPOL A	F											
21-1030	250	ECOPOL A	F	0.496	0.01312	0.339	0.109	0.168	0.06652	1.402	N/A	N/A	0.18752	0.04207
21-1031	0	ECOPOL A	F	0.505	0.01212	0.441	0.128	0.180	0.07601	1.708	N/A	N/A	0.15585	0.04699
21-1032	0	ECOPOL A	F	0.465	0.01248	0.473	0.132	0.174	0.04452	1.844	N/A	N/A	0.21345	0.05023
21-1093	1,000	ECOPOL A	F	0.560	0.01241	0.413	0.142	0.181	0.08180	1.856	N/A	N/A	0.12999	0.04193
21-1094	1,000	ECOPOL A	F	0.482	0.00906	0.355	0.075	0.151	0.02689	1.257	N/A	N/A	0.09850	0.03943
21-1103	2,000	ECOPOL A	F	0.482	0.01210	0.339	0.077	0.152	0.03885	1.341	N/A	N/A	0.09612	0.04348

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21-1104	2,000	ECOPOL A	F	0.528	0.01605	0.393	0.110	0.177	0.06305	1.416	N/A	N/A	0.09705	0.03605
21-1105	500	ECOPOL A	F	0.502	0.01576	0.425	0.114	0.192	0.04650	1.486	N/A	N/A	0.21650	0.0811
21-1106	500	ECOPOL A	F	0.566	0.01273	0.486	0.135	0.200	0.05662	1.764	N/A	N/A	0.28730	0.07936
21-0757	1,000	ECOPOL A	M	0.521	0.00812	0.600	0.071	0.222	0.05465	1.755	0.23290	0.11150	N/A	N/A
21-0758	1,000	ECOPOL A	M	0.456	0.00941	0.585	0.079	0.202	0.04591	1.701	0.27436	0.09478	N/A	N/A
21-0775	250	ECOPOL A	M	0.510	0.00832	0.538	0.086	0.250	0.05085	1.906	0.20385	0.10062	N/A	N/A
21-0776	250	ECOPOL A	M	0.528	0.00674	0.638	0.091	0.201	0.04342	2.196	0.24745	0.09911	N/A	N/A
21-0779	125	ECOPOL A	M	0.556	0.00802	0.571	0.101	0.266	0.02719	1.818	0.31700	0.10879	N/A	N/A
21-0780	125	ECOPOL A	M	0.489	0.00848	0.517	0.102	0.234	0.05100	2.043	0.20616	0.10527	N/A	N/A
21-0811	500	ECOPOL A	M	0.525	0.00717	0.592	0.071	0.237	0.02517	1.628	0.39202	0.11045	N/A	N/A
21-0812	500	ECOPOL A	M	0.488	0.00728	0.698	0.108	0.217	0.03757	2.149	0.26154	0.09295	N/A	N/A
21-0825	0	ECOPOL A	M	0.517	0.01476	0.477	0.083	0.222	0.03421	1.909	0.23580	0.09517	N/A	N/A
21-0826	0	ECOPOL A	M	0.538	0.00889	0.625	0.071	0.284	0.04688	1.441	0.25745	0.11658	N/A	N/A
21-0853	2,000	ECOPOL A	M	0.488	0.00889	0.497	0.078	0.182	0.03035	1.695	0.28702	0.10800	N/A	N/A
21-0854	2,000	ECOPOL A	M	0.484	0.00820	0.395	0.046	0.193	0.3911	1.281	0.20526	0.08729	N/A	N/A

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21-1007	0	ECOPOL A	F	0.494	0.00953	0.372	0.124	0.191	0.04176	1.406	N/A	N/A	0.11958	0.06888
21-1008	0	ECOPOL A	F	0.505	0.1125	0.442	0.100	0.219	0.05780 1	1.695	N/A	N/A	0.09709	0.05581
21-1009	500	ECOPOL A	F	0.531	0.01188	0.408	0.135	0.208	0.04400	1.817	N/A	N/A	0.10303	0.04652
21-1010	500	ECOPOL A	F	0.554	0.01020	0.431	0.120	0.188	0.04450	1.522	N/A	N/A	0.31511	0.05602
21-1011	125	ECOPOL A	F	0.516	0.01181	0.382	0.182	0.169	0.05196	1.576	N/A	N/A	0.28840	0.03709
21-1012	125	ECOPOL A	F	0.547	0.01219	0.409	0.120	0.193	0.05184	1.643	N/A	N/A	0.10873	0.03545
21-1015	250	ECOPOL A	F	0.582	0.01187	0.381	0.142	0.170	0.08619	1.451	N/A	N/A	0.36227	0.04963
21-1016	250	ECOPOL A	F	0.527	0.00960	0.383	0.092	0.234	0.03636	1.436	N/A	N/A	0.11576	0.05383
21-1057	2,000	ECOPOL A	F	0.512	0.01046	0.357	0.074	0.166	0.07280	1.177	N/A	N/A	0.13660	0.04517
21-1058	2,000	ECOPOL A	F	0.495	0.01490	0.363	0.106	0.156	0.05667	1.416	N/A	N/A	0.16335	0.05030
21-1063	1,000	ECOPOL A	F	0.553	0.01336	0.434	0.101	2.44	0.08655	1.599	N/A	N/A	0.23800	0.05782
21-1064	1,000	ECOPOL A	F	0.499	0.01143	0.307	0.072	0.166	0.04578	1.009	N/A	N/A	0.31350	0.05565
21-0781	1,000	ECOPOL A	M	0.536	0.01267	0.652	0.100	0.333	0.03133	2.036	0.2757 9	0.10982	N/A	N/A
21-0782	1,000	ECOPOL A	M	0.526	0.00849	0.508	0.063	0.259	0.03956	1.671	0.2979 2	0.11764	N/A	N/A
21-0805	125	ECOPOL A	M										N/A	N/A
21-0806	125	ECOPOL A	M	0.494	0.00869	0.656	0.081	0.228	0.03613	2.181	0.2774 0	0.11565	N/A	N/A
21-0839	2,000	ECOPOL A	M	0.496	0.00913	0.607	0.076	0.236	0.05706	1.999	0.2904 7	0.10432	N/A	N/A
21-0840	2,000	ECOPOL A	M	0.559	0.1042	0.627	0.094	0.230	0.05148	1.945	0.2671 6	0.10699	N/A	N/A

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21-0867	500	ECOPOL A	M	0.495	0.01144	0.616	0.079	0.198	0.03822	1.989	0.20260	0.08760	N/A	N/A
21-0868	500	ECOPOL A	M	0.501	0.00972	0.559	0.090	0.242	0.06125	1.905	0.22779	0.10120	N/A	N/A
21-0873	0	ECOPOL A	M	0.516	0.00795	0.554	0.076	0.227	0.03375	1.996	0.32504	0.12899	N/A	N/A
21-0874	0	ECOPOL A	M	0.492	0.00696	0.521	0.086	0.205	0.03229	1.982	0.22049	0.09049	N/A	N/A
21-0875	250	ECOPOL A	M	0.500	0.00852	0.621	0.079	0.319	0.04311	2.203	0.26256	0.11980	N/A	N/A
21-0876	250	ECOPOL A	M	0.515	0.00931	0.638	0.064	0.207	0.04633	2.304	0.25804	0.13754	N/A	N/A
21-1047	2,000	ECOPOL A	F	0.514	0.01685	0.398	0.104	0.182	0.09393	2.226	N/A	N/A	0.21738	0.04738
21-1048	2,000	ECOPOL A	F	0.520	0.01285	0.385	0.138	0.224	0.06747	1.390	N/A	N/A	0.14105	0.03904
21-1049	500	ECOPOL A	F	0.536	0.01222	0.399	0.103	0.191	0.05565	1.587	N/A	N/A	0.10169	0.04680
21-1050	500	ECOPOL A	F	0.521	0.01526	0.481	0.135	0.198	0.06785	1.817	N/A	N/A	0.10069	0.04956
21-1065	1,000	ECOPOL A	F	0.535	0.01494	0.382	0.182	0.205	0.06079	1.578	N/A	N/A	0.12379	0.05507
21-1066	1,000	ECOPOL A	F	0.513	0.01454	0.348	0.069	0.128	0.04379	1.236	N/A	N/A	0.34900	0.02718
21-1077	0	ECOPOL A	F	0.573	0.01543	0.387	0.094	0.212	0.06971	1.705	N/A	N/A	0.17421	0.06062
21-1078	0	ECOPOL A	F	0.576	0.00985	0.367	0.105	0.154	0.06943	1.486	N/A	N/A	0.21152	0.05720
21-1079	125	ECOPOL A	F	0.564	0.01174	0.477	0.113	0.164	0.05340	1.872	N/A	N/A	0.11247	0.04945
21-1080	125	ECOPOL A	F	0.490	0.00998	0.370	0.089	0.153	0.05414	1.408	N/A	N/A	0.15396	0.04520
21-1081	250	ECOPOL A	F	0.492	0.01278	0.438	0.185	0.219	0.06355	2.163	N/A	N/A	0.13694	0.06237
21-1082	250	ECOPOL A	F	0.522	0.0080	0.347	0.125	0.220	0.05080	1.659	N/A	N/A	0.13689	0.03840

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21-0783	250	ECOPOL A	M											
21-0784	250	ECOPOL A	M	0.522	0.00881	0.662	0.093	0.223	0.02006	2.339	0.25376	0.10469	N/A	N/A
21-0795	1,000	ECOPOL A	M	0.483	0.01246	0.501	0.069	0.163	0.03906	1.752	0.24546	0.09628	N/A	N/A
21-0796	1,000	ECOPOL A	M	0.475	0.00777	0.523	0.102	0.212	0.03245	1.985	0.22021	0.11293	N/A	N/A
21-0801	500	ECOPOL A	M	0.516	0.00728	0.520	0.095	0.214	0.04328	1.725	0.27562	0.11258	N/A	N/A
21-0802	500	ECOPOL A	M	0.501	0.00801	0.518	0.110	0.250	0.04822	1.839	0.22991	0.10369	N/A	N/A
21-0807	0	ECOPOL A	M	0.485	0.01001	0.668	0.065	0.266	0.03629	2.186	0.32750	0.12107	N/A	N/A
21-0808	0	ECOPOL A	M	0.473	0.00864	0.490	0.081	0.186	0.04176	1.910	0.20210	0.09767	N/A	N/A
21-0849	2,000	ECOPOL A	M											
21-0850	2,000	ECOPOL A	M	0.465	0.01139	0.551	0.102	0.274	0.03847	2.183	0.21527	0.09467	N/A	N/A
21-0855	125	ECOPOL A	M	0.542	0.01083	0.608	0.103	0.270	0.03826	2.350	0.20442	0.10514	N/A	N/A
21-0856	125	ECOPOL A	M	0.510	0.00786	0.629	0.105	0.210	0.03678	1.626	0.31756	0.12892	N/A	N/A
21-1051	1,000	ECOPOL A	F	0.494	0.01123	0.340	0.087	0.170	0.03178	1.222	N/A	N/A	0.08888	0.03479
21-1052	1,000	ECOPOL A	F	0.481	0.01387	0.374	0.104	0.162	0.07701	1.442	N/A	N/A	0.12012	0.02964
21-1071	250	ECOPOL A	F	0.508	0.01075	0.421	0.129	0.185	0.03793	1.444	N/A	N/A	0.11693	0.06224
21-1072	250	ECOPOL A	F	0.513	0.00909	0.348	0.123	0.168	0.03842	1.455	N/A	N/A	0.10232	0.04002

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21-1099	2,000	ECOPOL A	F	0.473	0.01168	0.342	0.082	0.216	0.05274	1.450	N/A	N/A	0.08052	0.02761
21-1100	2,000	ECOPOL A	F	0.518	0.01281	0.338	0.082	0.151	0.03272	1.326	N/A	N/A	0.14354	0.03625
21-1107	125	ECOPOL A	F	0.588	0.01122	0.334	0.086	0.237	0.04641	1.423	N/A	N/A	0.08380	0.04621
21-1108	125	ECOPOL A	F	0.533	0.01276	0.359	0.103	0.172	0.07742	1.378	N/A	N/A	0.10990	0.02835
21-1113	500	ECOPOL A	F	0.508	0.00945	0.348	0.103	0.163	0.05629	1.280	N/A	N/A	0.14309	0.03418
21-1114	500	ECOPOL A	F	0.504	0.01343	0.389	0.150	0.164	0.17094	1.414	N/A	N/A	0.11194	0.03589
21-1119	0	ECOPOL A	F	0.562	0.01050	0.348	0.129	0.203	0.05334	1.422	N/A	N/A	0.21432	0.05715
21-1120	0	ECOPOL A	F	0.537	0.01127	0.398	0.118	0.170	0.05694	1.431	N/A	N/A	0.18087	0.05492
21-1164	2,000	ENVIRO USP	F											
21-0885	0	ENVIRO USP	M	0.510	0.00572	0.702	0.079	0.247	0.03102	1.721	0.2378 2	0.14698	N/A	N/A
21-0886	0	ENVIRO USP	M	0.495	0.00591	0.621	0.075	0.179	0.04112	2.020	0.2327 7	0.11287	N/A	N/A
21-0889	1,000	ENVIRO USP	M	0.477	0.00664	0.536	0.082	0.247	0.04012	1.873	0.2716 0	0.10491	N/A	N/A
21-0890	1,000	ENVIRO USP	M	0.497	0.00692	0.529	0.093	0.221	0.03979	1.954	0.2446 5	0.11269	N/A	N/A
21-0897	500	ENVIRO USP	M	0.531	0.00753	0.653	0.061	0.226	0.03111	1.946	0.2340 1	0.12238	N/A	N/A
21-0898	500	ENVIRO USP	M	0.531	0.00754	0.677	0.152	0.199	0.03113	1.784	0.2565 8	0.10563	N/A	N/A
21-0919	250	ENVIRO USP	M	0.562	0.01007	0.664	0.090	0.210	0.02978	1.840	0.2406 0	0.10489	N/A	N/A
21-0920	250	ENVIRO USP	M	0.551	0.00763	0.600	0.081	0.198	0.03605	1.905	0.2604 3	0.12323	N/A	N/A

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21-0963	125	ENVIRO USP	M	0.549	0.01214	0.567	0.082	0.216	0.04721	2.080	0.2483 6	0.11946	N/A	N/A
21-0964	125	ENVIRO USP	M	0.488	0.00629	0.620	0.090	0.181	0.03445	2.056	0.2601 3	0.11069	N/A	N/A
21-0967	2,000	ENVIRO USP	M	0.520	0.00699	0.616	0.079	0.216	0.03641	1.509	0.2311 9	0.09830	N/A	N/A
21-0968	2,000	ENVIRO USP	M	0.535	0.00790	0.671	0.083	0.258	0.04832	2.100	0.3483 0	0.14035	N/A	N/A
21-1135	500	ENVIRO USP	F	0.520	0.01323	0.395	0.136	0.215	0.06410	1.524	N/A	N/A	0.13459	0.04058
21-1136	500	ENVIRO USP	F	0.527	0.01236	0.417	0.129	0.175	0.05668	1.660	N/A	N/A	0.13592	0.06100
21-1151	1,000	ENVIRO USP	F	0.493	0.01127	0.352	0.074	0.154	0.05322	1.045	N/A	N/A	0.11946	0.04110
21-1152	1,000	ENVIRO USP	F	0.500	0.01028	0.298	0.103	0.160	0.03165	1.089	N/A	N/A	0.18860	0.03944
21-1181	0	ENVIRO USP	F	0.535	0.01237	0.439	0.116	0.178	0.08061	1.402	N/A	N/A	0.17639	0.04719
21-1182	0	ENVIRO USP	F	0.516	0.01324	0.360	0.106	0.163	0.06222	1.274	N/A	N/A	0.13074	0.06745
21-1183	250	ENVIRO USP	F	0.458	0.01138	0.389	0.098	0.197	0.05664	0.972	N/A	N/A	0.12169	0.04966
21-1184	250	ENVIRO USP	F	0.528	0.01073	0.425	0.103	0.162	0.04728	1.319	N/A	N/A	0.10339	0.05026
21-1207	2,000	ENVIRO USP	F	0.577	0.01523	0.417	0.120	0.229	0.06412	1.301	N/A	N/A	0.18178	0.04535
21-1208	2,000	ENVIRO USP	F	0.543	0.01144	0.320	0.086	0.132	0.06659	1.209	N/A	N/A	0.10252	0.04700

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21-1221	125	ENVIRO USP	F	0.514	0.01070	0.377	0.160	0.175	0.04340	1.325	N/A	N/A	0.23090	0.04374
21-1222	125	ENVIRO USP	F	0.537	0.01575	0.429	0.195	0.200	0.06037	2.080	N/A	N/A	0.10927	0.06073
21-0955	0	ENVIRO USP	M	0.494	0.00680	0.472	0.071	0.168	0.04803	1.533	0.2429 3	0.10016	N/A	N/A
21-0956	0	ENVIRO USP	M	0.499	0.00750	0.614	0.085	0.196	0.02874	1.634	0.2352 3	0.12263	N/A	N/A
21-0905	1,000	ENVIRO USP	M	0.528	0.00923	0.686	0.097	0.253	0.03518	2.258	0.2414 7	0.11218	N/A	N/A
21-0906	1,000	ENVIRO USP	M	0.476	0.00967	0.574	0.094	0.220	0.02525	1.756	0.2685 9	0.11462	N/A	N/A
21-0921	125	ENVIRO USP	M	0.529	0.00932	0.615	0.075	0.206	0.02979	1.467	0.2473 6	0.10657	N/A	N/A
21-0922	125	ENVIRO USP	M	0.542	0.00746	0.679	0.098	0.215	0.03958	2.009	0.3266 9	0.12697	N/A	N/A
21-0941	250	ENVIRO USP	M	0.520	0.00825	0.610	0.073	0.200	0.02243	1.734	0.2339 9	0.09932	N/A	N/A
21-0942	250	ENVIRO USP	M	0.510	0.00986	0.508	0.105	0.191	0.04163	1.948	0.2846 4	0.10419	N/A	N/A
21-0969	500	ENVIRO USP	M	0.554	0.00965	0.625	0.093	0.212	0.02583	1.552	0.2724 2	0.11312	N/A	N/A
21-0970	500	ENVIRO USP	M	0.484	0.00379	0.542	0.078	0.200	0.03371	1.642	0.2497 1	0.09341	N/A	N/A
21-0977	2,000	ENVIRO USP	M	0.471	0.00645	0.474	0.066	0.167	0.02889	1.349	0.1995 1	0.07787	N/A	N/A
21-0978	2,000	ENVIRO USP	M	0.532	0.00403	0.641	0.080	0.193	0.05328	1.967	0.2734 2	0.09526	N/A	N/A

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21-1129	2,000	ENVIRO USP	F	0.514	0.00866	0.353	0.106	0.141	0.05001	1.163	N/A	N/A	0.09614	0.02107
21-1130	2,000	ENVIRO USP	F	0.513	0.00988	0.375	0.114	0.150	0.04290	1.219	N/A	N/A	0.25061	0.02842
21-1137	125	ENVIRO USP	F	0.553	0.01392	0.367	0.143	0.164	0.6466	1.362	N/A	N/A	0.16256	0.03155
21-1138	125	ENVIRO USP	F	0.555	0.00976	0.453	0.138	0.178	0.05275	1.398	N/A	N/A	0.11615	0.04152
21-1159	250	ENVIRO USP	F	0.500	0.01012	0.370	0.119	0.168	0.07563	1.686	N/A	N/A	0.09685	0.04793
21-1160	250	ENVIRO USP	F	0.466	0.01022	0.359	0.118	0.131	0.08436	1.556	N/A	N/A	0.09124	0.03335
21-1195	0	ENVIRO USP	F	0.529	0.01197	0.367	0.117	0.187	0.04323	1.433	N/A	N/A	0.20623	0.04824
21-1196	0	ENVIRO USP	F	0.523	0.01102	0.388	0.125	0.156	0.07005	1.409	N/A	N/A	0.17199	0.03432
21-1203	1,000	ENVIRO USP	F	0.540	0.00461	0.435	0.127	0.164	0.04719	1.634	N/A	N/A	0.19730	0.03414
21-1204	1,000	ENVIRO USP	F	0.518	0.01385	0.416	0.103	0.165	0.06597	1.452	N/A	N/A	0.31752	0.03102
21-1215	500	ENVIRO USP	F	0.555	0.00914	0.382	0.108	0.149	0.05608	1.161	N/A	N/A	0.18708	0.03336
21-1216	500	ENVIRO USP	F	0.532	0.401	0.01098	0.157	0.199	0.05205	1.584	N/A	N/A	0.07951	0.04797
21-0909	2,000	ENVIRO USP	M	0.463	0.00916	0.701	0.076	0.239	0.01516	1.671	0.3403 6	0.011075	N/A	N/A
21-0910	2,000	ENVIRO USP	M	0.507	0.00834	0.666	0.113	0.199	0.03059	1.751	0.2550 7	0.10907	N/A	N/A

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21-0917	0	ENVIRO USP	M	0.501	0.01153	0.516	0.103	0.193	0.04620	1.852	0.2798 2	0.11602	N/A	N/A
21-0918	0	ENVIRO USP	M	0.511	0.0835	0.558	0.066	0.225	0.02669	1.420	0.2379 0	0.10465	N/A	N/A
21-0937	250	ENVIRO USP	M	0.549	0.00945	0.750	0.110	0.230	0.03350	2.557	0.3024 4	0.11057	N/A	N/A
21-0938	250	ENVIRO USP	M	0.539	0.00745	0.604	0.057	0.211	0.3312	1.563	0.2574 6	0.09951	N/A	N/A
21-0945	1,000	ENVIRO USP	M	0.471	0.01024	0.567	0.071	0.244	0.03524	1.688	0.2590 3	0.11014	N/A	N/A
21-0946	1,000	ENVIRO USP	M	0.512	0.00732	0.480	0.092	0.165	0.03708	1.598	0.2142 1	0.10023	N/A	N/A
21-0947	500	ENVIRO USP	M	0.513	0.00641	0.604	0.086	0.191	0.03072	2.017	0.2775 0	0.12557	N/A	N/A
21-0948	500	ENVIRO USP	M	0.509	0.00553	0.546	0.098	0.179	0.04924	1.684	0.2843 5	0.11921	N/A	N/A
21-0983	125	ENVIRO USP	M	0.442	0.00622	0.514	0.089	0.168	0.04220	1.511	0.2169 5	0.09979	N/A	N/A
21-0984	125	ENVIRO USP	M	0.519	0.00436	0.429	0.110	0.156	0.03264	1.500	0.2544 4	0.10179	N/A	N/A
21-1133	1,000	ENVIRO USP	F	0.515	0.01255	0.402	0.142	0.158	0.06269	1.488	N/A	N/A	0.23356	0.02777
21-1134	1,000	ENVIRO USP	F	0.486	0.00873	0.320	0.080	0.147	0.05924	1.174	N/A	N/A	0.14382	0.03085
21-1157	0	ENVIRO USP	F	0.520	0.00888	0.366	0.088	0.192	0.07687	1.432	N/A	N/A	0.10893	0.03875
21-1158	0	ENVIRO USP	F	0.513	0.01100	0.378	0.124	0.153	0.05131	1.465	N/A	N/A	0.28730	0.03206

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21-1165	250	ENVIRO USP	F	0.549	0.00995	0.428	0.117	0.166	0.06044	1.543	N/A	N/A	0.09650	0.03644
21-1166	250	ENVIRO USP	F	0.523	0.01024	0.339	0.119	0.167	0.04615	1.364	N/A	N/A	0.11344	0.03213
21-1177	500	ENVIRO USP	F	0.536	0.00878	0.386	0.115	0.177	0.05324	1.500	N/A	N/A	0.13020	0.04068
21-1178	500	ENVIRO USP	F	0.491	0.00935	0.366	0.097	0.152	0.03781	1.557	N/A	N/A	0.15186	0.03247
21-1209	2,000	ENVIRO USP	F	0.550	0.01233	0.342	0.110	0.153	0.07311	1.507	N/A	N/A	0.24749	0.03031
21-1210	2,000	ENVIRO USP	F	0.525	0.00989	0.428	0.125	0.190	0.06385	1.567	N/A	N/A	0.24145	0.03416
21-1231	125	ENVIRO USP	F	0.511	0.00885	0.413	0.128	0.160	0.06039	1.553	N/A	N/A	0.13835	0.02588
21-1232	125	ENVIRO USP	F	0.510	0.01079	0.376	0.142	0.177	0.06129	1.498	N/A	N/A	0.06505	0.04020
21-0980	500	ENVIRO USP	M											
21-0965	0	ENVIRO USP	M	0.481	0.01109	0.629	0.121	0.233	0.05537	1.925	0.2456 5	0.10797	N/A	N/A
21-0966	0	ENVIRO USP	M	0.524	0.0999	0.577	0.097	0.219	0.03820	1.897	0.2591 5	0.12821	N/A	N/A
21-0883	250	ENVIRO USP	M	0.491	0.01402	0.563	0.088	0.207	0.02704	1.733	0.3012 4	0.11328	N/A	N/A
21-0884	250	ENVIRO USP	M	0.483	0.01466	0.628	0.085	0.225	0.02932	1.978	0.2679 3	0.12622	N/A	N/A
21-0887	1,000	ENVIRO USP	M	0.502	0.00991	0.680	0.092	0.239	0.03560	2.085	0.2618 4	0.12574	N/A	N/A

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21-0888	1,000	ENVIRO USP	M	0.534	0.00848	0.604	0.096	0.215	0.03635	2.185	0.2255 2	0.10184	N/A	N/A
21-0929	125	ENVIRO USP	M	0.514	0.00926	0.559	0.077	0.208	0.02362	1.765	0.2357 8	0.11057	N/A	N/A
21-0930	125	ENVIRO USP	M	0.469	0.00841	0.604	0.090	0.194	0.02623	2.051	0.2481 3	0.10195	N/A	N/A
21-0943	2,000	ENVIRO USP	M	0.529	0.01118	0.547	0.093	0.223	0.04504	2.397	0.2761 2	0.10840	N/A	N/A
21-0944	2,000	ENVIRO USP	M	0.482	0.00867	0.405	0.098	0.200	0.02081	1.439	0.2542 9	0.11288	N/A	N/A
21-0979	500	ENVIRO USP	M	0.513	0.01117	0.651	0.081	0.242	0.02923	1.688	0.2366 9	0.11445	N/A	N/A
21-1185	0	ENVIRO USP	F	0.532	0.01585	0.402	0.117	0.234	0.05829	1.559	N/A	N/A	0.22253	0.07682
21-1186	0	ENVIRO USP	F	0.521	0.01102	0.338	0.089	0.159	0.04470	1.217	N/A	N/A	0.21982	0.03851
21-1145	125	ENVIRO USP	F	0.487	0.01745	0.381	0.092	0.179	0.05952	1.350	N/A	N/A	0.17539	0.06529
21-1146	125	ENVIRO USP	F	0.494	0.01128	0.300	0.096	0.162	0.06211	1.430	N/A	N/A	0.11205	0.04729
21-1175	500	ENVIRO USP	F	0.520	0.01068	0.360	0.115	0.182	0.08372	1.487	N/A	N/A	0.17594	0.04165
21-1176	500	ENVIRO USP	F	0.511	0.01142	0.346	0.134	0.153	0.04260	1.444	N/A	N/A	0.16992	0.06682
21-1179	250	ENVIRO USP	F	0.505	0.01273	0.315	0.095	0.171	0.05280	1.234	N/A	N/A	0.16671	0.04184
21-1180	250	ENVIRO USP	F	0.584	0.01158	0.461	0.152	0.186	0.06071	1.722	N/A	N/A	0.12406	0.06042

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21-1197	2,000	ENVIRO USP	F	0.506	0.01184	0.350	0.099	0.140	0.05439	1.111	N/A	N/A	0.09330	0.04825
21-1198	2,000	ENVIRO USP	F	0.512	0.01160	0.393	0.127	0.236	0.08606	1.462	N/A	N/A	0.12041	0.07278
21-1235	1,000	ENVIRO USP	F	0.528	0.01142	0.380	0.093	0.159	0.03893	1.339	N/A	N/A	0.27351	0.04744
21-1236	1,000	ENVIRO USP	F	0.519	0.01360	0.390	0.102	0.167	0.08868	1.613	N/A	N/A	0.16802	0.04289
21-0901	0	ENVIRO USP	M	0.514	0.01229	0.515	0.066	0.175	0.03395	1.437	0.3042 8	0.11732	N/A	N/A
21-0902	0	ENVIRO USP	M	0.516	0.00999	0.682	0.102	0.206	0.05210	1.522	0.2736 8	0.11032	N/A	N/A
21-0923	1,000	ENVIRO USP	M	0.458	0.00870	0.551	0.086	0.193	0.03768	1.975	0.2040 5	0.09033	N/A	N/A
21-0924	1,000	ENVIRO USP	M	0.519	0.00891	0.651	0.107	0.218	0.03807	2.346	0.3037 4	0.11437	N/A	N/A
21-0925	2,000	ENVIRO USP	M	0.509	0.00737	0.522	0.094	0.192	0.04499	1.694	0.2738 6	0.11783	N/A	N/A
21-0926	2,000	ENVIRO USP	M	0.538	0.00969	0.730	0.089	0.249	0.02923	2.035	0.2759 3	0.10763	N/A	N/A
21-0951	500	ENVIRO USP	M	0.513	0.00830	0.597	0.098	0.275	0.02819	1.927	0.2929 9	0.11880	N/A	N/A
21-0952	500	ENVIRO USP	M	0.530	0.01133	0.476	0.089	0.194	0.03056	1.642	0.2808 0	0.10780	N/A	N/A
21-0981	250	ENVIRO USP	M	0.520	0.00845	0.591	0.061	0.189	0.02003	1.878	0.3390 3	0.11376	N/A	N/A
21-0982	250	ENVIRO USP	M	0.509	0.01022	0.647	0.107	0.229	0.04211	2.073	0.2918 8	0.12270	N/A	N/A

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21-0995	125	ENVIRO USP	M	0.484	0.01043	0.550	0.076	0.212	0.04895	1.652	0.2403 7	0.11927	N/A	N/A
21-0996	125	ENVIRO USP	M	0.485	0.00810	0.481	0.080	0.200	0.03515	1.935	0.2822 7	0.10732	N/A	N/A
21-1163	2,000	ENVIRO USP	F	0.493	0.01238	0.364	0.120	0.178	0.03737	1.268	N/A	N/A	0.18384	0.05164
21-1187	125	ENVIRO USP	F	0.508	0.01807	0.403	0.107	0.239	0.06172	1.427	N/A	N/A	0.16590	0.05536
21-1189	0	ENVIRO USP	F	0.537	0.00856	0.351	0.088	0.175	0.05106	1.462	N/A	N/A	0.14528	0.05014
21-1190	0	ENVIRO USP	F	0.543	0.01686	0.381	0.118	0.164	0.03088	1.572	N/A	N/A	0.13562	0.03945
21-1193	1,000	ENVIRO USP	F	0.526	0.01387	0.322	0.091	0.178	0.05214	1.258	N/A	N/A	0.32702	0.05537
21-1194	1,000	ENVIRO USP	F	0.526	0.01449	0.405	0.106	0.161	0.04315	1.258	N/A	N/A	0.21101	0.03670
21-1219	500	ENVIRO USP	F	0.491	0.01349	0.351	0.099	0.195	0.03384	1.375	N/A	N/A	0.22299	0.04654
21-1220	500	ENVIRO USP	F	0.507	0.01119	0.357	0.097	0.171	0.05095	1.356	N/A	N/A	0.18719	0.04776
21-1237	250	ENVIRO USP	F	0.467	0.01532	0.365	0.130	0.184	0.06304	1.310	N/A	N/A	0.35004	0.07575
21-1238	250	ENVIRO USP	F	0.569	0.01299	0.336	0.125	0.158	0.05396	1.218	N/A	N/A	0.24049	0.04770
21-0881	0	NFD 20-391	M	0.532	0.00831	0.501	0.094	0.255	0.05380	1.563	0.2694 0	0.10544	N/A	N/A
21-0882	0	NFD 20-391	M	0.497	0.00850	0.654	0.093	0.254	0.04302	1.927	0.2957 0	0.10883	N/A	N/A

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21-0903	1,000	NFD 20-391	M	0.545	0.00856	0.663	0.091	0.296	0.0392	1.731	0.2367 6	0.11265	N/A	N/A
21-0904	1,000	NFD 20-391	M	0.486	0.00975	0.594	0.078	0.196	0.04040	1.671	0.2164 5	0.10612	N/A	N/A
21-0939	250	NFD 20-391	M	0.477	0.00933	0.470	0.091	0.236	0.02892	1.446	0.2063 5	0.09893	N/A	N/A
21-0940	250	NFD 20-391	M	0.481	0.00885	0.555	0.063	0.190	0.03064	1.399	0.2482 9	0.10389	N/A	N/A
21-0961	500	NFD 20-391	M	0.492	0.00694	0.560	0.073	0.213	0.04143	1.489	0.2308 6	0.12694	N/A	N/A
21-0962	500	NFD 20-391	M	0.457	0.00797	0.634	0.087	0.193	0.03109	1.521	0.2646 5	0.12040	N/A	N/A
21-0987	125	NFD 20-391	M	0.458	0.00752	0.468	0.090	0.141	0.02450	1.206	0.2168 8	0.09553	N/A	N/A
21-0988	125	NFD 20-391	M	0.503	0.00444	0.457	0.087	0.161	0.03843	1.418	0.2478 2	0.09666	N/A	N/A
21-0989	2,000	NFD 20-391	M	0.522	0.00485	0.565	0.084	0.214	0.03265	1.740	0.3278 3	0.10958	N/A	N/A
21-0990	2,000	NFD 20-391	M	0.539	0.00684	0.730	0.097	0.197	0.04803	1.727	0.3065 4	0.11125	N/A	N/A
21-1139	500	NFD 20-391	F	0.560	0.00806	0.396	0.161	0.166	0.07777	1.598	N/A	N/A	0.10932	0.02711
21-1140	500	NFD 20-391	F	0.497	0.01216	0.384	0.124	0.162	0.05231	1.486	N/A	N/A	0.20966	0.03079
21-1147	0	NFD 20-391	F	0.521	0.00653	0.399	0.102	0.220	0.05972	1.077	N/A	N/A	0.15332	0.04404
21-1148	0	NFD 20-391	F	0.505	0.00956	0.395	0.118	0.181	0.05682	1.601	N/A	N/A	0.1,000 8	0.03623
21-1149	1,000	NFD 20-391	F	0.499	0.00921	0.390	0.155	0.154	0.06196	1.289	N/A	N/A	0.07263	0.04026

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21-1150	1,000	NFD 20-391	F	0.494	0.00647	0.329	0.098	0.178	0.04361	1.112	N/A	N/A	0.24565	0.02900
21-1173	125	NFD 20-391	F	0.567	0.00686	0.405	0.115	0.175	0.04644	1.277	N/A	N/A	0.06984	0.02808
21-1174	125	NFD 20-391	F	0.496	0.00853	0.368	0.109	0.210	0.04370	1.449	N/A	N/A	0.20694	0.03312
21-1211	2,000	NFD 20-391	F	0.502	0.01130	0.349	0.098	0.164	0.06418	1.430	N/A	N/A	0.14152	0.03134
21-1212	2,000	NFD 20-391	F	0.469	0.01065	0.332	0.125	0.142	0.05146	1.254	N/A	N/A	0.10996	0.03893
21-1243	250	NFD 20-391	F	0.521	0.01054	0.388	0.128	0.197	0.05112 3	1.354	N/A	N/A	0.21902	0.03801
21-1244	250	NFD 20-391	F	0.517	0.00917	0.360	0.090	0.167	0.04047	1.241	N/A	N/A	0.10439	0.04221
21-0893	500	NFD 20-391	M	0.467	0.00713	0.602	0.061	0.205	0.03012	2.100	0.3170 5	0.11832	N/A	N/A
21-0894	500	NFD 20-391	M	0.500	0.00785	0.679	0.086	0.245	0.04367	1.945	0.3138 3	0.11539	N/A	N/A
21-0913	125	NFD 20-391	M	0.491	0.00740	0.558	0.092	0.192	0.03862	1.642	0.2735 0	0.10277	N/A	N/A
21-0914	125	NFD 20-391	M	0.503	0.01050	0.646	0.109	0.227	0.04026	1.914	0.2681 0	0.10900	N/A	N/A
21-0933	250	NFD 20-391	M	0.525	0.00636	0.486	0.078	0.101	0.04114	1.923	0.2973 5	0.10147	N/A	N/A
21-0934	250	NFD 20-391	M	0.506	0.00512	0.589	0.068	0.197	0.03673	1.484	0.2953 8	0.11694	N/A	N/A
21-0949	0	NFD 20-391	M	0.528	0.00547	0.467	0.099	0.162	0.05569	1.617	0.2401 3	0.10437	N/A	N/A
21-0950	0	NFD 20-391	M	0.505	0.00609	0.603	0.078	0.186	0.03560	1.786	0.3312 1	0.09457	N/A	N/A
21-0973	2,000	NFD 20-391	M	0.471	0.00576	0.624	0.083	0.182	0.02445	1.598	0.2261 7	0.07789	N/A	N/A

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21-0974	2,000	NFD 20-391	M	0.510	0.00570	0.617	0.088	0.241	0.04080	1.465	0.21557	0.09598	N/A	N/A
21-0991	1,000	NFD 20-391	M	0.515	0.00583	0.522	0.102	0.181	0.03909	1.570	0.28998	0.10269	N/A	N/A
21-0992	1,000	NFD 20-391	M	0.466	0.00554	0.501	0.081	0.187	0.03373	1.685	0.24946	0.10582	N/A	N/A
21-1131	125	NFD 20-391	F	0.538	0.01340	0.387	0.131	0.155	0.04123	1.589	N/A	N/A	0.15536	0.03295
21-1132	125	NFD 20-391	F	0.516	0.01228	0.381	0.107	0.139	0.05998	1.231	N/A	N/A	0.12527	0.02393
21-1153	2,000	NFD 20-391	F	0.524	0.01201	0.415	0.093	0.177	0.06095	1.189	N/A	N/A	0.24048	0.03623
21-1154	2,000	NFD 20-391	F	0.501	0.00828	0.323	0.125	0.135	0.04078	1.154	N/A	N/A	0.12338	0.03447
21-1169	0	NFD 20-391	F	0.552	0.01169	0.492	0.139	0.190	0.05044	1.475	N/A	N/A	0.13333	0.05245
21-1170	0	NFD 20-391	F	0.522	0.01349	0.383	0.121	0.155	0.06454	1.387	N/A	N/A	0.10675	0.03929
21-1201	500	NFD 20-391	F	0.586	0.01233	0.390	0.133	0.183	0.07183	1.582	N/A	N/A	0.13456	0.04880
21-1202	500	NFD 20-391	F	0.578	0.01094	0.412	0.098	0.193	0.06885	1.829	N/A	N/A	0.21209	0.04547
21-1217	250	NFD 20-391	F	0.496	0.00902	0.365	0.102	0.153	0.04926	1.281	N/A	N/A	0.16806	0.03770
21-1218	250	NFD 20-391	F	0.499	0.01058	0.338	0.107	0.154	0.05976	1.129	N/A	N/A	0.22080	0.04156
21-1233	1,000	NFD 20-391	F	0.566	0.00944	0.409	0.085	0.158	0.05015	1.339	N/A	N/A	0.24527	0.03434
21-1234	1,000	NFD 20-391	F	0.548	0.01109	0.357	0.093	0.193	0.04207	1.201	N/A	N/A	0.22139	0.04999
21-0895	1,000	NFD 20-391	M	0.512	0.00660	0.593	0.090	0.195	0.04680	1.585	0.27583	0.11785	N/A	N/A
21-0896	1,000	NFD 20-391	M	0.541	0.00724	0.618	0.069	0.258	0.02790	1.825	0.29688	0.11178	N/A	N/A
21-0927	125	NFD 20-391	M	0.555	0.00632	0.623	0.075	0.219	0.04269	1.861	0.25500	0.10689	N/A	N/A

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21-0928	125	NFD 20-391	M	0.538	0.00562	0.695	0.096	0.220	0.02782	1.868	0.2590 6	0.09875	N/A	N/A
21-0931	2,000	NFD 20-391	M	0.494	0.00493	0.531	0.096	0.208	0.04593	1.682	0.2925 3	0.09484	N/A	N/A
21-0932	2,000	NFD 20-391	M	0.514	0.00508	0.496	0.081	0.216	0.03839	1.650	0.2754 2	0.09280	N/A	N/A
21-0985	250	NFD 20-391	M	0.541	0.00631	0.578	0.096	0.222	0.04561	2.124	0.2637 8	0.10582	N/A	N/A
21-0986	250	NFD 20-391	M	0.540	0.00603	0.545	0.106	0.203	0.04926	1.660	0.2772 3	0.14155	N/A	N/A
21-0993	500	NFD 20-391	M	0.518	0.00737	0.563	0.086	0.200	0.03907	1.868	0.2900 3	0.11572	N/A	N/A
21-0994	500	NFD 20-391	M	0.512	0.00505	0.543	0.081	0.207	0.03913	1.770	0.2561 2	0.09882	N/A	N/A
21-1005	0	NFD 20-391	M	0.507	0.00567	0.591	0.090	0.204	0.02490	1.630	0.2847 4	0.11954	N/A	N/A
21-1006	0	NFD 20-391	M	0.507	0.00614	0.641	0.086	0.209	0.03286	1.806	0.3008 1	0.12468	N/A	N/A
21-1245	0	NFD 20-391	F	0.537	0.00927	0.414	0.123	0.183	0.02314	1.626	N/A	N/A	0.10806	0.04574
21-1246	0	NFD 20-391	F	0.517	0.00848	0.347	0.094	0.132	0.05532	1.309	N/A	N/A	0.18453	0.03798
21-1127	125	NFD 20-391	F	0.540	0.00960	0.358	0.099	0.164	0.04325	1.440	N/A	N/A	0.09401	0.02637
21-1128	125	NFD 20-391	F	0.575	0.01076	0.415	0.100	0.148	0.04817	1.303	N/A	N/A	0.11589	0.03644
21-1141	2,000	NFD 20-391	F	0.545	0.01251	0.455	0.163	0.184	0.04710	1.540	N/A	N/A	0.16919	0.04001
21-1142	2,000	NFD 20-391	F	0.527	0.01049	0.445	0.107	0.156	0.04218	1.549	N/A	N/A	0.10971	0.03194
21-1155	250	NFD 20-391	F	0.566	0.01081	0.481	0.141	0.168	0.07721	1.743	N/A	N/A	0.09873	0.04666
21-1156	250	NFD 20-391	F	0.565	0.00974	0.417	0.130	0.167	0.06256	1.590	N/A	N/A	0.15780	0.04254

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21-1199	1,000	NFD 20-391	F	0.545	0.00880	0.353	0.136	0.172	0.06531	2.013	N/A	N/A	0.22656	0.04256
21-1200	1,000	NFD 20-391	F	0.499	0.01005	0.358	0.100	0.267	0.05059	1.282	N/A	N/A	0.16855	0.04430
21-1239	500	NFD 20-391	F	0.517	0.00845	0.300	0.114	0.124	0.03956	0.939	N/A	N/A	0.11328	0.03103
21-1240	500	NFD 20-391	F	0.530	0.00981	0.390	0.113	0.183	0.03977	1.342	N/A	N/A	0.08687	0.03642
21-0891	500	NFD 20-391	M	0.487	0.01405	0.711	0.086	0.222	0.03007	2.578	0.2851 1	0.12450	N/A	N/A
21-0892	500	NFD 20-391	M	0.505	0.00842	0.625	0.078	0.224	0.04450	1.880	0.2998 7	0.12006	N/A	N/A
21-0899	2,000	NFD 20-391	M	0.512	0.00555	0.489	0.084	0.207	0.03327	2.003	0.2318 1	0.10437	N/A	N/A
21-0900	2,000	NFD 20-391	M	0.489	0.00835	0.611	0.072	0.0421 6	0.04240	1.816	0.2646 7	0.11848	N/A	N/A
21-0907	250	NFD 20-391	M	0.486	0.00825	0.551	0.065	0.179	0.02960	1.857	0.2833 3	0.11371	N/A	N/A
21-0908	250	NFD 20-391	M	0.520	0.00726	0.536	0.074	0.198	0.03072	1.799	0.2560 5	0.10644	N/A	N/A
21-0971	1,000	NFD 20-391	M	0.549	0.00788	0.735	0.093	0.221	0.03144	2.028	0.3136 0	0.12555	N/A	N/A
21-0972	1,000	NFD 20-391	M	0.490	0.00969	0.585	0.074	0.189	0.04935	1.874	0.2541 2	0.10829	N/A	N/A
21-0997	125	NFD 20-391	M	0.525	0.01064	0.577	0.083	0.174	0.02917	1.625	0.2960 2	0.12119	N/A	N/A
21-0998	125	NFD 20-391	M	0.485	0.01032	0.703	0.091	0.211	0.03340	1.723	0.2917 8	0.11835	N/A	N/A
21-1001	0	NFD 20-391	M	0.479	0.01087	0.542	0.108	0.214	0.03746	1.810	0.2257 3	0.11213	N/A	N/A

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21-1002	0	NFD 20-391	M	0.516	0.00677	0.586	0.081	0.201	0.05427	2.035	0.24739	0.11427	N/A	N/A
21-1161	500	NFD 20-391	F	0.565	0.01006	0.376	0.090	0.171	0.03699	1.592	N/A	N/A	0.10989	0.04717
21-1162	500	NFD 20-391	F	0.541	0.01132	0.425	0.106	0.187	0.06201	1.648	N/A	N/A	0.09239	0.05663
21-1171	2,000	NFD 20-391	F	0.507	0.01225	0.388	0.091	0.156	0.04371	1.270	N/A	N/A	0.13370	0.07660
21-1172	2,000	NFD 20-391	F	0.496	0.01586	0.441	0.085	0.185	0.03811	1.361	N/A	N/A	0.22926	0.09097
21-1205	250	NFD 20-391	F	0.572	0.01607	0.504	0.101	0.189	0.06025	1.576	N/A	N/A	0.09841	0.06266
21-1206	250	NFD 20-391	F	0.552	0.01473	0.370	0.097	0.164	0.06070	1.294	N/A	N/A	0.06669	0.04772
21-1224	1,000	NFD 20-391	F	0.496	0.01719	0.450	0.124	0.154	0.04245	1.694	N/A	N/A	0.21730	0.05775
21-1225	1,000	NFD 20-391	F	0.453	0.01439	0.329	0.093	0.160	0.05565	1.294	N/A	N/A	0.14094	0.03792
21-1226	125	NFD 20-391	F	0.514	0.01366	0.421	0.109	0.184	0.04407	1.406	N/A	N/A	0.26978	0.03770
21-1241	0	NFD 20-391	F	0.525	0.00889	0.306	0.062	0.158	0.04769	1.037	N/A	N/A	0.12476	0.03642
21-1242	0	NFD 20-391	F	0.470	0.01093	0.337	0.093	0.186	0.04084	1.097	N/A	N/A	0.23038	0.04482
21-0915	250	NFD 20-391	M	0.532	0.00803	0.652	0.133	0.217	0.04061	1.981	0.30911	0.14617	N/A	N/A
21-0916	250	NFD 20-391	M	0.521	0.01049	0.772	0.104	0.214	0.05139	2.313	0.32198	0.11982	N/A	N/A
21-0935	125	NFD 20-391	M	0.544	0.01037	0.436	0.140	0.257	0.03171	2.038	0.29796	0.10484	N/A	N/A
21-0936	125	NFD 20-391	M	0.524	0.00875	0.696	0.088	0.211	0.03239	2.110	0.30855	0.15139	N/A	N/A
21-0953	500	NFD 20-391	M	0.475	0.00731	0.544	0.085	0.212	0.05742	1.499	0.24990	0.10592	N/A	N/A
21-0954	500	NFD 20-391	M	0.490	0.00875	0.596	0.085	0.215	0.03065	1.441	0.25923	0.09854	N/A	N/A

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21-0959	2,000	NFD 20-391	M	0.505	0.01028	0.594	0.072	0.224	0.01503	1.374	0.22880	0.09166	N/A	N/A
21-0960	2,000	NFD 20-391	M	0.456	0.00733	0.563	0.094	0.193	0.24640	1.313	0.23172	0.09786	N/A	N/A
21-0975	0	NFD 20-391	M	0.473	0.00789	0.572	0.081	0.227	0.03801	1.918	0.27927	0.12008	N/A	N/A
21-0976	0	NFD 20-391	M	0.496	0.00836	0.695	0.101	0.217	0.03753	2.072	0.27323	0.13249	N/A	N/A
21-1003	1,000	NFD 20-391	M	2.824	0.00973	0.519	0.075	0.179	0.03700	1.372	0.21463	0.09067	N/A	N/A
21-1004	1,000	NFD 20-391	M	0.498	0.00615	0.636	0.112	0.222	0.02819	1.671	0.19139	0.09927	N/A	N/A
21-1227	0	NFD 20-391	F	0.511	0.01611	0.364	0.104	0.141	0.04837	1.649	N/A	N/A	0.15619	0.03467
21-1228	0	NFD 20-391	F	0.525	0.01226	0.362	0.097	0.228	0.03702	1.200	N/A	N/A	0.23927	0.05483
21-1143	1,000	NFD 20-391	F	0.533	0.00999	0.333	0.093	0.160	0.05913	1.346	N/A	N/A	0.15742	0.03260
21-1144	1,000	NFD 20-391	F	0.541	0.01161	0.400	0.123	0.210	0.06459	1.305	N/A	N/A	0.25193	0.05054
21-1167	250	NFD 20-391	F	0.468	0.01462	0.470	0.103	0.150	0.05520	1.234	N/A	N/A	0.10721	0.05474
21-1168	250	NFD 20-391	F	0.482	0.01114	0.356	0.088	0.181	0.04933	1.161	N/A	N/A	0.26635	0.03330
21-1191	125	NFD 20-391	F	0.613	0.01202	0.385	0.150	0.179	0.09925	1.433	N/A	N/A	0.17629	0.07218
21-1192	125	NFD 20-391	F	0.532	0.01079	0.400	0.107	0.201	0.03382	1.224	N/A	N/A	0.10455	0.06304
21-1213	2,000	NFD 20-391	F	0.506	0.01175	0.417	0.160	0.170	0.05872	1.582	N/A	N/A	0.15739	0.04862
21-1214	2,000	NFD 20-391	F	0.527	0.01124	0.341	0.097	0.159	0.05504	1.359	N/A	N/A	0.23088	0.04290
21-1229	500	NFD 20-391	F	0.492	0.01294	0.333	0.084	0.134	0.06619	1.069	N/A	N/A	0.13544	0.06009
21-1230	500	NFD 20-391	F	0.502	0.01495	0.403	0.102	0.176	0.04717	1.374	N/A	N/A	0.14519	0.06061

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21-0511	2,000	NRL 502W	M	0.466	0.00448	0.673	0.08223	0.208	0.04582	1.564	0.230	0.07562	N/A	N/A
21-0512	2,000	NRL 502W	M	0.539	0.00572	0.574	0.08835	0.212	0.03455	1.599	0.229	0.11227	N/A	N/A
21-0545	125	NRL 502W	M	0.524	0.00366	0.592	0.07340	0.204	0.04454	2.328	0.243	0.09326	N/A	N/A
21-0546	125	NRL 502W	M	0.549	0.00438	0.668	0.07705	0.235	0.03918	2.297	0.311	0.08280	N/A	N/A
21-0569	250	NRL 502W	M	0.514	0.00500	0.597	0.07535	0.260	0.04184	1.944	0.221	0.09224	N/A	N/A
21-0570	250	NRL 502W	M	0.492	0.00394	0.608	0.07314	0.206	0.03189	1.902	0.262	0.09706	N/A	N/A
21-0571	500	NRL 502W	M	0.473	0.00362	0.554	0.07336	0.222	0.03012	1.957	0.258	0.09554	N/A	N/A
21-0572	500	NRL 502W	M	0.481	0.00357	0.510	0.07947	0.170	0.03851	1.808	0.246	0.09769	N/A	N/A
21-0577	0	NRL 502W	M	0.499	0.00380	0.562	0.07730	0.196	0.04423	1.983	0.275	0.08702	N/A	N/A
21-0578	0	NRL 502W	M	0.493	0.00408	0.564	0.09652	0.213	0.02913	2.047	0.234	0.09461	N/A	N/A
21-0585	1,000	NRL 502W	M	0.471	0.00263	0.529	0.09338	0.194	0.03131	2.019	0.271	0.09750	N/A	N/A
21-0586	1,000	NRL 502W	M	0.486	0.00454	0.508	0.08882	0.213	0.04218	1.820	0.196	0.08483	N/A	N/A
21-0631	2,000	NRL 502W	F	0.475	0.00942	0.348	0.10044	0.153	0.05613	1.550	N/A	N/A	0.223	0.03344
21-0632	2,000	NRL 502W	F	0.486	0.00653	0.333	0.09211	0.147	0.05284	1.369	N/A	N/A	0.12214	0.03550
21-0637	500	NRL 502W	F	0.525	0.01059	0.375	0.12133	0.194	0.06806	1.418	N/A	N/A	0.165	0.04995
21-0638	500	NRL 502W	F	0.497	0.01028	0.363	0.11715	0.206	0.04882	1.187	N/A	N/A	0.143	0.04279
21-0673	125	NRL 502W	F	0.518	0.01083	0.480	0.23327	0.222	0.03731	2.245	N/A	N/A	0.126	0.03539
21-0674	125	NRL 502W	F	0.541	0.00882	0.348	0.11611	0.168	0.04009	1.496	N/A	N/A	0.131	0.04904
21-0689	0	NRL 502W	F	0.523	0.00898	0.394	0.13114	0.214	0.07028	1.696	N/A	N/A	0.120	0.02913
21-0690	0	NRL 502W	F	0.536	0.00869	0.469	0.14199	0.215	0.06117	1.631	N/A	N/A	0.272	0.03283
21-0695	1,000	NRL 502W	F	0.514	0.01065	0.332	0.11448	0.169	0.06886	1.425	N/A	N/A	0.239	0.03765

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21-0696	1,000	NRL 502W	F	0.434	0.01041	0.379	0.12567	0.165	0.04623	1.253	N/A	N/A	0.353	0.02747
21-0707	250	NRL 502W	F	0.512	0.01293	0.368	0.12318	0.220	0.06600	1.497	N/A	N/A	0.301	0.03070
21-0708	250	NRL 502W	F	0.471	0.00960	0.322	0.11980	0.125	0.02615	1.263	N/A	N/A	0.369	0.02313
21-0519	2,000	NRL 502W	M	0.523	0.00440	0.554	0.09876	0.225	0.03887	2.212	0.266	0.10342	N/A	N/A
21-0528	500	NRL 502W	M	0.464	0.00293	0.510	0.05907	0.196	0.05208	1.784	0.308	0.10690	N/A	N/A
21-0520	2,000	NRL 502W	M	0.515	0.00502	0.580	0.09650	0.241	0.03611	1.895	0.307	0.10957	N/A	N/A
21-0527	500	NRL 502W	M	0.510	0.00466	0.495	0.09239	0.283	0.03134	1.565	0.339	0.11388	N/A	N/A
21-0573	125	NRL 502W	M	0.496	0.00272	0.486	0.09407	0.152	0.03238	1.841	0.208	0.08130	N/A	N/A
21-0574	125	NRL 502W	M	0.455	0.00671	0.541	0.07462	0.212	0.03376	1.808	0.199	0.09276	N/A	N/A
21-0581	250	NRL 502W	M	0.521	0.00539	0.625	0.08952	0.214	0.04395	2.030	0.253	0.09923	N/A	N/A
21-0582	250	NRL 502W	M	0.518	0.00455	0.720	0.08348	0.236	0.03659	2.198	0.237	0.09415	N/A	N/A
21-0589	0	NRL 502W	M	0.513	0.00450	0.641	0.09210	0.248	0.03439	2.034	0.266	0.08812	N/A	N/A
21-0590	0	NRL 502W	M	0.489	0.00497	0.580	0.06238	0.212	0.02985	1.617	0.269	0.09380	N/A	N/A
21-0613	1,000	NRL 502W	M	0.518	0.00486	0.592	0.07111	0.279	0.05328	1.884	0.245	0.08986	N/A	N/A
21-0614	1,000	NRL 502W	M	0.522	0.00436	0.608	0.06508	0.200	0.02925	1.924	0.215	0.09785	N/A	N/A
21-0623	125	NRL 502W	F	0.491	0.00866	0.336	0.09490	0.155	0.04365	1.517	N/A	N/A	0.177	0.02907
21-0624	125	NRL 502W	F	0.575	0.00979	0.421	0.14699	0.190	0.05146	1.848	N/A	N/A	0.140	0.03728
21-0677	2,000	NRL 502W	F	0.526	0.01321	0.373	0.14425	0.181	0.07578	1.397	N/A	N/A	0.176	0.04218
21-0678	2,000	NRL 502W	F	0.281	0.00718	0.296	0.07526	0.182	0.04014	1.194	N/A	N/A	0.188	0.02385
21-0679	500	NRL 502W	F	0.490	0.00731	0.319	0.09397	0.171	0.03310	1.198	N/A	N/A	0.096	0.03365
21-0680	500	NRL 502W	F	0.532	0.01186	0.448	0.15261	0.186	0.05996	1.843	N/A	N/A	0.236	0.03886

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21-0693	1,000	NRL 502W	F	0.531	0.00969	0.363	0.12510	0.226	0.05015	1.593	N/A	N/A	0.128	0.02487
21-0694	1,000	NRL 502W	F	0.507	0.00998	0.334	0.12738	0.162	0.05837	1.157	N/A	N/A	0.183	0.03406
21-0697	0	NRL 502W	F	0.494	0.00923	0.370	0.14769	0.169	0.03109	1.573	N/A	N/A	0.139	0.03529
21-0698	0	NRL 502W	F	0.557	0.01232	0.385	0.10781	0.205	0.04831	1.268	N/A	N/A	0.124	0.03431
21-0705	250	NRL 502W	F	0.509	0.00797	0.444	0.11758	0.196	0.03815	1.697	N/A	N/A	0.169	0.05414
21-0706	250	NRL 502W	F	0.513	0.01067	0.386	0.11076	0.197	0.04402	1.590	N/A	N/A	0.154	0.03997
21-0499	500	NRL 502W	M	0.511	0.00510	0.572	0.08065	0.290	0.04276	1.729	0.251	0.09152	N/A	N/A
21-0500	500	NRL 502W	M	0.509	0.00540	0.545	0.10809	0.208	0.03933	1.963	0.297	0.10196	N/A	N/A
21-0505	250	NRL 502W	M	0.484	0.00486	0.549	0.08439	0.192	0.05151	2.011	0.313	0.10827	N/A	N/A
21-0549	125	NRL 502W	M	0.502	0.00461	0.650	0.09262	0.219	0.05164	N/A	0.303	0.10390	N/A	N/A
21-0550	125	NRL 502W	M	0.517	0.00524	0.564	0.10117	0.275	0.04144	1.938	0.353	0.12300	N/A	N/A
21-0561	2,000	NRL 502W	M	0.473	0.03861	0.490	0.09334	0.222	0.00378	1.986	0.265	0.09692	N/A	N/A
21-0562	2,000	NRL 502W	M	0.467	0.00446	0.475	0.11689	0.166	0.04925	1.563	0.369	0.08436	N/A	N/A
21-0597	1,000	NRL 502W	M	0.517	0.00452	0.579	0.07459	0.227	0.04248	2.003	0.286	0.10167	N/A	N/A
21-0598	1,000	NRL 502W	M	0.503	0.00351	0.428	0.07628	0.198	0.04790	1.701	0.220	0.08277	N/A	N/A
21-0611	0	NRL 502W	M	0.518	0.00356	0.538	0.09840	0.244	0.03366	1.994	0.256	0.09872	N/A	N/A
21-0612	0	NRL 502W	M	0.522	0.00603	0.666	0.08742	0.273	0.03982	2.324	0.299	0.11027	N/A	N/A
21-0633	0	NRL 502W	F	0.500	0.00828	0.323	0.06081	0.214	0.11033	1.442	N/A	N/A	0.129	0.03997
21-0635	250	NRL 502W	F	0.535	0.01366	0.412	0.13672	0.197	0.04297	1.598	N/A	N/A	0.134	0.04656
21-0636	250	NRL 502W	F	0.511	0.00796	0.352	0.06651	0.169	0.03201	1.095	N/A	N/A	0.113	0.03212
21-0639	125	NRL 502W	F	0.480	0.00952	0.443	0.09597	0.175	0.06431	1.556	N/A	N/A	0.154	0.06301

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21-0640	125	NRL 502W	F	0.494	0.00768	0.336	0.11112	0.143	0.03888	1.298	N/A	N/A	0.175	0.03664
21-0687	2,000	NRL 502W	F	0.504	0.01042	0.454	0.12539	0.202	0.06947	1.729	N/A	N/A	0.210	0.03319
21-0688	2,000	NRL 502W	F	0.470	0.00987	0.346	0.10111	0.163	0.04996	1.549	N/A	N/A	0.293	0.02756
21-0701	1,000	NRL 502W	F	0.511	0.01008	0.317	0.09495	0.200	0.03041	1.307	N/A	N/A	0.189	0.02497
21-0702	1,000	NRL 502W	F	0.557	0.00829	0.374	0.08567	0.245	0.05560	1.362	N/A	N/A	0.138	0.03097
21-0719	500	NRL 502W	F	0.498	0.00898	0.457	0.14300	0.179	0.07290	1.856	N/A	N/A	0.279	0.03161
21-0720	500	NRL 502W	F	0.530	0.00945	0.399	0.16085	0.215	0.06630	1.917	N/A	N/A	0.110	0.03009
21-0497	250	NRL 502W	M	0.532	0.00471	0.550	0.06365	0.168	0.02430	1.704	0.225	0.09380	N/A	N/A
21-0498	250	NRL 502W	M	0.512	0.00386	0.465	0.08243	0.215	0.03657	1.989	0.261	0.09993	N/A	N/A
21-0537	0	NRL 502W	M	0.481	0.00423	0.524	0.09196	0.181	0.04917	1.883	0.263	0.10442	N/A	N/A
21-0538	0	NRL 502W	M	0.547	0.00458	0.601	0.11272	0.226	0.04899	1.992	0.268	0.10310	N/A	N/A
21-0541	500	NRL 502W	M	0.496	0.00417	0.639	0.06679	0.219	0.02954	1.864	0.241	0.08726	N/A	N/A
21-0542	500	NRL 502W	M	0.526	0.00467	0.646	0.12194	0.224	0.04549	2.262	0.270	0.10468	N/A	N/A
21-0553	1,000	NRL 502W	M	0.509	0.00456	0.529	0.10691	0.195	0.04692	1.608	0.239	0.09628	N/A	N/A
21-0554	1,000	NRL 502W	M	0.488	0.00387	0.625	0.10071	0.218	0.04022	1.846	0.251	0.10926	N/A	N/A
21-0575	125	NRL 502W	M	0.539	0.00382	0.587	0.09288	0.225	0.05045	2.186	0.314	0.10792	N/A	N/A
21-0576	125	NRL 502W	M	0.497	0.00451	0.540	0.07454	0.180	0.02920	1.682	0.305	0.10581	N/A	N/A
21-0587	2,000	NRL 502W	M	0.534	0.00328	0.545	0.07790	0.197	0.03409	1.450	0.236	0.08802	N/A	N/A
21-0588	2,000	NRL 502W	M	0.539	0.00351	0.608	0.08357	0.223	0.02220	1.536	0.256	0.09910	N/A	N/A
21-0669	2,000	NRL 502W	F	0.539	0.00992	0.362	0.08956	0.184	0.03566	1.276	N/A	N/A	0.101	0.02221
21-0670	2,000	NRL 502W	F	0.526	0.00943	0.371	0.11033	0.197	0.03726	1.333	N/A	N/A	0.147	0.02813

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21-0691	500	NRL 502W	F	0.526	0.00914	0.313	0.08216	0.193	0.03665	1.229	N/A	N/A	0.147	0.03285
21-0692	500	NRL 502W	F	0.471	0.00852	0.339	0.08689	0.146	0.05132	1.303	N/A	N/A	0.210	0.03196
21-0703	125	NRL 502W	F	0.500	0.01141	0.325	0.10923	0.163	0.06561	1.387	N/A	N/A	0.306	0.02898
21-0704	125	NRL 502W	F	0.558	0.01151	0.357	0.11373	0.187	0.02636	1.542	N/A	N/A	0.200	0.03574
21-0711	1,000	NRL 502W	F	0.547	0.01035	0.444	0.14165	0.215	0.10403	1.739	N/A	N/A	0.356	0.03160
21-0712	1,000	NRL 502W	F	0.557	0.00846	0.414	0.10067	0.190	0.03343	1.579	N/A	N/A	0.126	0.03006
21-0727	250	NRL 502W	F	0.526	0.00888	0.361	0.08496	0.198	0.04132	1.678	N/A	N/A	0.265	0.04230
21-0728	250	NRL 502W	F	0.518	0.00936	0.301	0.11339	0.158	0.07512	1.467	N/A	N/A	0.207	0.03396
21-0733	0	NRL 502W	F	0.613	0.00945	0.531	0.22782	0.224	0.04346	2.775	N/A	N/A	0.155	0.03624
21-0734	0	NRL 502W	F	0.567	0.00757	0.353	0.12794	0.176	0.07779	1.523	N/A	N/A	0.132	0.03157
21-0523	125	NRL 502W	M	0.506	0.00480	0.615	0.08169	0.212	0.03140	2.098	0.294	0.10277	N/A	N/A
21-0524	125	NRL 502W	M	0.554	0.00449	0.713	0.09505	0.239	0.04090	2.418	0.255	0.10344	N/A	N/A
21-0531	2,000	NRL 502W	M	0.511	0.00381	0.558	0.09161	0.268	0.03300	1.949	0.256	0.09489	N/A	N/A
21-0532	2,000	NRL 502W	M	0.523	0.00157	0.515	0.08126	0.220	0.02958	1.708	0.282	0.09760	N/A	N/A
21-0551	500	NRL 502W	M	0.462	0.00399	0.498	0.09643	0.190	0.14568	1.621	0.247	0.08505	N/A	N/A
21-0552	500	NRL 502W	M	0.513	0.00436	0.693	0.11291	0.227	0.03972	N/A	0.242	0.09397	N/A	N/A
21-0555	250	NRL 502W	M	0.516	0.00324	0.625	0.10469	0.218	0.03518	2.022	0.300	0.09577	N/A	N/A
21-0556	250	NRL 502W	M	0.493	0.00446	0.586	0.09149	0.193	0.04197	2.184	0.249	0.10705	N/A	N/A
21-0591	0	NRL 502W	M	0.519	0.00450	0.611	0.09243	0.216	0.05501	2.257	0.254	0.10409	N/A	N/A
21-0592	0	NRL 502W	M	0.487	0.00480	0.584	0.09191	0.194	0.04096	2.548	0.298	0.08814	N/A	N/A
21-0595	1,000	NRL 502W	M	0.516	0.00546	0.544	0.09335	0.220	0.05076	2.288	0.292	0.10314	N/A	N/A

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21-0596	1,000	NRL 502W	M	0.465	0.00312	0.421	0.08154	0.160	0.02862	1.511	0.208	0.10470	N/A	N/A
21-0645	500	NRL 502W	F	0.504	0.01027	0.387	0.11483	0.195	0.06018	2.001	N/A	N/A	0.172	0.03624
21-0646	500	NRL 502W	F	0.554	0.00737	0.447	0.16148	0.208	0.07647	2.193	N/A	N/A	0.108	0.03958
21-0653	2,000	NRL 502W	F	0.548	0.00757	0.352	0.10651	0.195	0.07020	1.420	N/A	N/A	0.174	0.03490
21-0654	2,000	NRL 502W	F	0.542	0.01023	0.398	0.10864	0.231	0.05735	1.926	N/A	N/A	0.129	0.03596
21-0667	1,000	NRL 502W	F	0.515	0.00805	0.352	0.11050	0.149	0.07988	1.384	N/A	N/A	0.125	0.03053
21-0668	1,000	NRL 502W	F	0.560	0.00879	0.389	0.13438	0.185	0.04336	1.626	N/A	N/A	0.114	0.03274
21-0685	0	NRL 502W	F	0.515	0.01051	0.331	0.09291	0.146	0.04293	1.202	N/A	N/A	0.139	0.02646
21-0686	0	NRL 502W	F	0.513	0.00992	0.369	0.10714	0.164	0.05692	1.445	N/A	N/A	0.143	0.03734
21-0709	125	NRL 502W	F	0.531	0.01177	0.381	0.15554	0.211	0.05024	1.880	N/A	N/A	0.246	0.04085
21-0710	125	NRL 502W	F	0.487	0.00711	0.320	0.07207	0.164	0.05061	1.212	N/A	N/A	0.172	0.03237
21-0715	250	NRL 502W	F	0.535	0.00839	0.435	0.14308	0.207	0.05122	1.930	N/A	N/A	0.145	0.04594
21-0716	250	NRL 502W	F	0.532	0.01084	0.428	0.10279	0.172	0.08203	1.541	N/A	N/A	0.177	0.03443
21-0809	500	Re-Healing	M	0.491	0.00586	0.596	0.085	0.202	0.048	1.947	0.2234	0.1003	N/A	N/A
21-0810	500	Re-Healing	M	0.564	0.0057	0.714	0.106	0.197	0.056	2.243	0.2518	0.0998	N/A	N/A
21-0819	1,000	Re-Healing	M	0.475	0.0052	0.556	0.080	0.197	0.042	1.990	0.2836	0.0919	N/A	N/A
21-0820	1,000	Re-Healing	M	0.518	0.0046	0.635	0.100	0.208	0.046	2.018	0.2376	0.1016	N/A	N/A
21-0827	125	Re-Healing	M	0.553	0.0028	0.674	0.082	0.191	0.047	2.046	0.1836	0.0850	N/A	N/A
21-0828	125	Re-Healing	M	0.496	0.00491	0.568	0.093	0.221	0.045	2.221	0.1942	0.0866	N/A	N/A
21-0831	2,000	Re-Healing	M	0.486	0.00532	0.666	0.094	0.203	0.036	2.181	0.3123	0.1008	N/A	N/A
21-0832	2,000	Re-Healing	M	0.511	0.00414	0.586	0.094	0.209	0.053		0.2391	0.0912	N/A	N/A

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21-0841	250	Re-Healing	M	0.462	0.0032	0.460	0.078	0.165	0.023	1.854	0.2253	0.0775	N/A	N/A
21-0842	250	Re-Healing	M	0.474	0.00414	0.639	0.128	0.205	0.047	1.724	0.3123	0.1168	N/A	N/A
21-0877	0	Re-Healing	M	0.458	0.00514	0.467	0.067	0.178	0.063	1.766	0.2369	0.8233	N/A	N/A
21-0878	0	Re-Healing	M	0.522	0.00387	0.589	0.080	0.219	0.030	1.976	0.3327	0.1097	N/A	N/A
21-1045	500	Re-Healing	F	0.543	0.00906	0.476	0.109	0.197	0.061	1.858	N/A	N/A	0.209	0.047
21-1046	500	Re-Healing	F	0.502	0.00789	0.472	0.179	0.197	0.093	2.229	N/A	N/A	0.149	0.037
21-1055	125	Re-Healing	F	0.529	0.01035	0.408	0.088	0.216	0.039	1.665	N/A	N/A	0.191	0.059
21-1056	125	Re-Healing	F	0.539	0.01186	0.376	0.115	0.162	0.060	1.685	N/A	N/A	0.231	0.028
21-1073	250	Re-Healing	F	0.512	0.01209	0.448	0.134	0.169	0.047	1.932	N/A	N/A	0.160	0.040
21-1074	250	Re-Healing	F	0.522	0.01091	0.367	0.064	0.171	0.043	1.498	N/A	N/A	0.222	0.037
21-1091	2,000	Re-Healing	F	0.550	0.01184	0.393	0.102	0.185	0.036	1.515	N/A	N/A	0.239	0.038
21-1092	2,000	Re-Healing	F	0.515	0.01115	0.395	0.089	0.167	0.051	1.443	N/A	N/A	0.331	0.039
21-1095	1,000	Re-Healing	F	0.533	0.00946	0.342	0.113	0.152	0.074	1.555	N/A	N/A	0.190	0.027
21-1096	1,000	Re-Healing	F	0.514	0.00976	0.385	0.800	0.150	0.061	1.630	N/A	N/A	0.213	0.033
21-1115	0	Re-Healing	F	0.451	0.00868	0.300	0.079	0.141	0.051	1.219	N/A	N/A	0.111	0.042
21-1116	0	Re-Healing	F	0.462	0.00932	0.388	0.056	0.143	0.038	1.120	N/A	N/A	0.109	0.010
21-0769	0	Re-Healing	M	0.487	0.00506	0.569	0.057	0.176	0.036	1.858	0.1853 0	0.08495	N/A	N/A
21-0770	0	Re-Healing	M	0.564	0.00562	0.600	0.092	0.249	0.034	2.415	0.2753 0	0.09702	N/A	N/A
21-0777	500	Re-Healing	M	0.519	0.00557	0.613	0.096	0.271	0.011	2.140	0.2327 0	0.08751	N/A	N/A

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21-0778	500	Re-Healing	M	0.494	0.00511	0.685	0.087	0.199	0.030	2.081	0.2826 2	0.11347	N/A	N/A
21-0833	250	Re-Healing	M	0.532	0.00513	0.628	0.092	0.254	0.053	2.741	0.2642 4	0.10208	N/A	N/A
21-0834	250	Re-Healing	M	0.483	0.00519	0.634	0.065	0.193	0.030	2.139	0.2224 3	0.09871	N/A	N/A
21-0843	1,000	Re-Healing	M	0.492	0.00457	0.692	0.082	0.226	0.042	1.988	0.2323 0	0.08404	N/A	N/A
21-0844	1,000	Re-Healing	M	0.513	0.00378	0.491	0.068	0.185	0.049	1.830	0.3084 1	0.09964	N/A	N/A
21-0859	125	Re-Healing	M	0.520	0.00502	0.667	0.097	0.245	0.035	2.161	0.2469 8	0.09540	N/A	N/A
21-0860	125	Re-Healing	M	0.485	0.00679	0.616	0.096	0.220	0.046	1.953	0.2249 4	0.09925	N/A	N/A
21-0869	2,000	Re-Healing	M	0.500	0.00447	0.549	0.104	0.181	0.022	1.991	0.2441 9	0.08470	N/A	N/A
21-0870	2,000	Re-Healing	M	0.495	0.0064	0.591	0.071	0.173	0.020	1.610	0.3041 6	0.10711	N/A	N/A
21-1025	125	Re-Healing	F	0.510	0.00861	0.434	0.099	0.172	0.053	1.654	N/A	N/A	0.202	0.052
21-1026	125	Re-Healing	F	0.587	0.00793	0.360	0.170	0.193	0.099	1.548	N/A	N/A	0.092	0.025
21-1067	250	Re-Healing	F	0.537	0.01105	0.310	0.115	0.153	0.046	1.298	N/A	N/A	0.224	0.033
21-1068	250	Re-Healing	F	0.557	0.00878	0.472	0.180	0.211	0.118	1.961	N/A	N/A	0.127	0.039
21-1069	0	Re-Healing	F	0.505	0.00981	0.466	0.106	0.177	0.063	1.996	N/A	N/A	0.176	0.092
21-1070	0	Re-Healing	F	0.567	0.01126	0.466	0.145	0.207	0.081	2.324	N/A	N/A	0.107	0.023
21-1087	1,000	Re-Healing	F	0.519	0.01112	0.403	0.125	0.167	0.059	1.612	N/A	N/A	0.174	0.034
21-1088	1,000	Re-Healing	F											

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21-1111	500	Re-Healing	F	0.508	0.00850	0.378	0.106	0.180	0.075	1.869	N/A	N/A	0.124	0.041
21-1112	500	Re-Healing	F	0.499	0.01138	0.409	0.118	0.159	0.049	1.729	N/A	N/A	0.179	0.021
21-1125	2,000	Re-Healing	F	0.478	0.00666	0.323	0.076	0.168	0.034	1.187	N/A	N/A	0.084	0.021
21-1126	2,000	Re-Healing	F	0.533	0.00736	0.399	0.121	0.169	0.069	1.468	N/A	N/A	0.093	0.038
21-0759	500	Re-Healing	M	0.491	0.00453	0.634	0.106	0.198	0.031	2.153	0.2522 1	0.10115	N/A	N/A
21-0760	500	Re-Healing	M	0.529	0.00457	0.571	0.115	0.323	0.043	2.243	0.2190 4	0.10110	N/A	N/A
21-0765	125	Re-Healing	M	0.545	0.00392	0.599	0.114	0.208	0.060	2.140	0.2709 9	0.10328	N/A	N/A
21-0766	125	Re-Healing	M	0.509	0.00488	0.573	0.111	0.269	0.039	1.511	0.3079 2	0.10023	N/A	N/A
21-0789	2,000	Re-Healing	M											
21-0790	2,000	Re-Healing	M	0.523	0.00400	0.588	0.093	0.228	0.043	2.084	0.2632 9	0.09715	N/A	N/A
21-0813	0	Re-Healing	M	0.511	0.00482	0.627	0.098	0.202	0.045	2.028	0.2577 4	0.10666	N/A	N/A
21-0814	0	Re-Healing	M	0.539	0.00479	0.639	0.080	0.227	0.046	2.167	0.2835 2	0.09545	N/A	N/A
21-0847	250	Re-Healing	M	0.528	0.00502	0.653	0.059	0.202	0.034	2.403	0.2870 9	0.09437	N/A	N/A
21-0848	250	Re-Healing	M	0.510	0.00478	0.763	0.104	0.635	0.031	2.150	0.2781 2	0.11459	N/A	N/A
21-0871	1,000	Re-Healing	M	0.488	0.00502	0.543	0.089	0.220	0.070	2.007	0.2120 7	0.09927	N/A	N/A

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21-0872	1,000	Re-Healing	M	0.508	0.00428	0.532	0.074	0.181	0.042	1.726	0.2630 4	0.09539	N/A	N/A
21-1017	125	Re-Healing	F	0.424	0.0120	0.371	0.148	0.199	0.091	1.883	N/A	N/A	0.351	0.032
21-1018	125	Re-Healing	F	0.529	0.01016	0.499	0.189	0.177	0.121	2.380	N/A	N/A	0.142	0.039
21-1027	0	Re-Healing	F	0.506	0.00819	0.392	0.086	0.153	0.093	1.379	N/A	N/A	0.157	0.046
21-1028	0	Re-Healing	F	0.557	0.00781	1.811	0.090	0.155	0.099	2.112	N/A	N/A	0.199	0.034
21-1041	500	Re-Healing	F	0.493	0.01165	0.367	0.085	0.154	0.040	1.383	N/A	N/A	0.201	0.061
21-1042	500	Re-Healing	F	0.504	0.00714	0.339	0.124	0.174	0.084	1.431	N/A	N/A	0.073	0.037
21-1097	2,000	Re-Healing	F	0.483	0.00760	0.333	0.091	0.136	0.060	1.255	N/A	N/A	0.124	0.023
21-1098	2,000	Re-Healing	F	0.486	0.00977	0.362	0.100	0.180	0.042	1.487	N/A	N/A	0.134	0.026
21-1101	250	Re-Healing	F	0.530	0.01108	0.410	0.159	0.168	0.059	1.830	N/A	N/A	0.127	0.021
21-1102	250	Re-Healing	F	0.513	0.00890	0.390	0.092	0.154	0.067	1.385	N/A	N/A	0.255	0.028
21-1117	1,000	Re-Healing	F	0.529	0.00469	0.429	0.118	0.165	0.059	1.775	N/A	N/A	0.175	0.030
21-1118	1,000	Re-Healing	F	0.540	0.01096	0.451	0.164	0.190	0.061	2.151	N/A	N/A	0.169	0.045
21-0755	125	Re-Healing	M	0.524	0.00429	0.561	0.121	0.195	0.038	2.220	0.2698 3	0.10093	N/A	N/A
21-0756	125	Re-Healing	M	0.487	0.00434	0.631	0.116	0.215	0.023	1.844	0.2592 3	0.08397	N/A	N/A
21-0761	1,000	Re-Healing	M										N/A	N/A
21-0762	1,000	Re-Healing	M	0.477	0.00419	0.496	0.110	0.157	0.048	1.998	0.2548 6	0.09550	N/A	N/A
21-0797	0	Re-Healing	M	0.495	0.00539	0.667	0.100	0.183	0.060	2.131	0.2728 8	0.10844	N/A	N/A

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21-0798	0	Re-Healing	M	0.518	0.00577	0.626	0.099	0.200	0.057	2.062	0.2649 1	0.04930	N/A	N/A
21-0817	250	Re-Healing	M	0.585	0.00634	0.611	0.096	0.200	0.048	2.278	0.2805 4	0.11570	N/A	N/A
21-0818	250	Re-Healing	M	0.506	0.00452	0.536	0.102	0.210	0.041	1.853	0.3097 0	0.10966	N/A	N/A
21-0823	500	Re-Healing	M	0.507	0.00386	0.580	0.078	0.192	0.117	2.090	0.2303 8	0.09230	N/A	N/A
21-0824	500	Re-Healing	M	0.525	0.00591	0.619	0.101	0.212	0.036	2.111	0.2886 5	0.11706	N/A	N/A
21-0835	2,000	Re-Healing	M	0.478	0.00449	0.496	0.045	0.184	0.023	1.600	0.2620 2	0.08452	N/A	N/A
21-0836	2,000	Re-Healing	M	0.528	0.00310	0.597	0.082	0.230	0.039	2.301	0.2817 8	0.10382	N/A	N/A
21-1035	1,000	Re-Healing	F	0.512	0.00496	0.383	0.088	0.198	0.071	1.698	N/A	N/A	0.2260	0.032
21-1036	1,000	Re-Healing	F	0.489	0.00952	0.371	0.088	0.186	0.047	1.578	N/A	N/A	0.093	0.039
21-1043	500	Re-Healing	F	0.527	0.01090	0.355	0.111	0.163	0.054	1.508	N/A	N/A	0.189	0.031
21-1044	500	Re-Healing	F	0.528	0.01113	0.428	0.133	0.156	0.070	1.583	N/A	N/A	0.191	0.038
21-1075	2,000	Re-Healing	F	0.511	0.01248	0.349	0.085	0.150	0.072	1.406	N/A	N/A	0.145	0.042
21-1076	2,000	Re-Healing	F	0.521	0.00971	0.425	0.078	0.179	0.065	1.372	N/A	N/A	0.092	0.030
21-1083	0	Re-Healing	F	0.532	0.00813	0.394	0.137	0.197	0.064	1.798	N/A	N/A	0.153	0.023
21-1084	0	Re-Healing	F	0.511	0.01116	0.328	0.093	0.180	0.043	1.215	N/A	N/A	0.236	0.028
21-1085	125	Re-Healing	F	0.504	0.00684	0.431	0.160	0.162	0.056	1.776	N/A	N/A	0.180	0.032
21-1086	125	Re-Healing	F	0.524	0.00790	0.336	0.087	0.183	0.042	1.500	N/A	N/A	0.193	0.034
21-1123	250	Re-Healing	F	0.518	0.00916	0.426	0.165	0.154	0.074	1.759	N/A	N/A	0.130	0.032

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21-1124	250	Re-Healing	F	0.555	0.00944	0.422	0.182	0.187	0.062	1.814	N/A	N/A	0.090	0.025
21-0773	1,000	Re-Healing	M	0.517	0.00479	0.587	0.093	0.196	0.04048	2.287	0.22110	0.08737	N/A	N/A
21-0774	1,000	Re-Healing	M	0.554	0.00489	0.658	0.080	0.255	0.04213	1.892	0.31330	0.12027	N/A	N/A
21-0785	2,000	Re-Healing	M	0.503	0.00562	0.582	0.152	0.258	0.0404	1.582	0.25721	0.08170	N/A	N/A
21-0786	2,000	Re-Healing	M	0.494	0.00459	0.416	0.065	0.169	0.0259	1.615	0.24257	0.09200	N/A	N/A
21-0799	500	Re-Healing	M	0.515	0.00509	0.736	0.099	0.213	0.03971	2.346	0.25254	0.10252	N/A	N/A
21-0800	500	Re-Healing	M	0.507	0.00465	0.556	0.090	0.223	0.0338	1.609	0.20561	0.09170	N/A	N/A
21-0829	250	Re-Healing	M	0.523	0.00382	0.553	0.082	0.248	0.04400	1.912	0.26340	0.09961	N/A	N/A
21-0830	250	Re-Healing	M	0.525	0.00186	0.522	0.083	0.190	0.03620	1.920	0.26674	0.09164	N/A	N/A
21-0857	0	Re-Healing	M	0.512	0.00401	0.574	0.070	0.210	0.03716	1.729	0.25556	0.09649	N/A	N/A
21-0858	0	Re-Healing	M	0.509	0.00533	0.521	0.099	0.186	0.04825	2.039	0.30947	0.10156	N/A	N/A
21-0865	125	Re-Healing	M	0.517	0.00544	0.674	0.102	0.219	0.04412	2.383	0.34852	0.11616	N/A	N/A
21-0866	125	Re-Healing	M	0.509	0.00411	0.462	0.065	0.155	0.03054	1.690	0.22992	0.09156	N/A	N/A
21-1033	0	Re-Healing	F	0.533	0.01080	0.388	0.107	0.168	0.07380	1.653	N/A	N/A	0.259	0.0423
21-1034	0	Re-Healing	F	0.498	0.1060	0.406	0.143	0.160	0.0684	1.678	N/A	N/A	0.08310	0.02867

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21-1037	1,000	Re-Healing	F	0.557	0.01024	0.423	0.089	0.174	0.06480	1.559	N/A	N/A	0.15529	0.0304
21-1038	1,000	Re-Healing	F	0.521	0.01105	0.417	0.131	0.166	0.06618	1.778	N/A	N/A	0.24475	0.03556
21-1039	2,000	Re-Healing	F	0.525	0.01099	0.421	0.101	0.228	0.0763	1.541	N/A	N/A	0.2959	0.03226
21-1040	2,000	Re-Healing	F	0.507	0.00997	0.399	0.097	0.182	0.0366	1.578	N/A	N/A	0.1239	0.0394
21-1061	125	Re-Healing	F	0.500	0.00825	0.353	0.142	0.157	0.0439	1.878	N/A	N/A	0.13336	0.0296
21-1062	125	Re-Healing	F	0.520	0.00825	0.354	0.079	0.175	0.0635	1.201	N/A	N/A	0.0767	0.0333
21-1109	500	Re-Healing	F	0.504	0.349	0.00966	0.073	0.155	0.0912	1.478	N/A	N/A	0.0725	0.0322
21-1110	500	Re-Healing	F	0.485	0.00977	0.323	0.069	0.170	0.0969	1.451	N/A	N/A	0.1105	0.0216
21-1121	250	Re-Healing	F	0.532	0.338	0.00695	0.090	0.141	0.0480	1.228	N/A	N/A	0.159	0.0226
21-1122	250	Re-Healing	F	0.572	0.00931	0.371	0.100	0.160	0.0432	1.678	N/A	N/A	0.272	0.033

Table F-10. Concentrations of Thyroid Hormones (µg/mL) from 28-day Tests

Product	Dose (mg/kg-d)	Sex	Animal ID	Sac Date	Unique ID	Plate #	Spot #	T3	T4	TSH
Avio Green	1,000	M	21-0605	2021-05-18T00:00:00Z	1	1	1	17215.5	230960.7	<LOQ
Avio Green	0	F	21-0644	2021-05-18T00:00:00Z	4	1	4	13789.5	NC	<LOQ
Avio Green	1,000	F	21-0741	2021-05-18T00:00:00Z	6	1	6	14168.25	326998.1	<LOQ
Avio Green	0	M	21-0529	2021-05-20T00:00:00Z	8	1	8	21607.5	218823.5	<LOQ
Avio Green	1,000	F	21-0724	2021-05-21T00:00:00Z	9	1	9	17144.25	238166.8	<LOQ
Avio Green	0	M	21-0530	2021-05-20T00:00:00Z	14	1	14	18880.5	297513.5	<LOQ
Avio Green	0	F	21-0737	2021-05-20T00:00:00Z	15	1	15	19843.5	301273.2	<LOQ
Avio Green	1,000	M	21-0593	2021-05-17T00:00:00Z	16	1	16	17043	221272.4	<LOQ
Avio Green	0	F	21-0643	2021-05-18T00:00:00Z	26	1	26	24512.25	294329.5	<LOQ
Avio Green	0	F	21-0740	2021-05-21T00:00:00Z	34	1	34	13080	359289.8	<LOQ
Avio Green	2,000	F	21-0729	2021-05-19T00:00:00Z	44	2	6	5830.825	309593.6	<LOQ
Avio Green	1,000	M	21-0606	2021-05-18T00:00:00Z	47	2	9	5168.001	224823.6	<LOQ
Avio Green	0	M	21-0601	2021-05-19T00:00:00Z	55	2	17	4453.384	237382.4	<LOQ
Avio Green	2,000	F	21-0730	2021-05-19T00:00:00Z	62	2	24	<LOQ	236047.5	<LOQ
Avio Green	0	M	21-0539	2021-05-17T00:00:00Z	85	3	9			
Avio Green	1,000	M	21-0526	2021-05-19T00:00:00Z	91	3	15	9075.853	256645.8	<LOQ
Avio Green	2,000	M	21-0599	2021-05-21T00:00:00Z	98	3	22	6032.551	312843.3	<LOQ
Avio Green	2,000	F	21-0718	2021-05-20T00:00:00Z	112	3	36	5511.215	233175.1	<LOQ
Avio Green	0	F	21-0738	2021-05-20T00:00:00Z	122	4	8	19650	NC	<LOQ
Avio Green	0	M	21-0602	2021-05-19T00:00:00Z	125	4	11	17901	592806	3054
Avio Green	1,000	F	21-0649	2021-05-20T00:00:00Z	126	4	12	14418	NC	<LOQ
Avio Green	1,000	M	21-0594	2021-05-17T00:00:00Z	142	4	28	1950.738	289232.3	<LOQ
Avio Green	1,000	M	21-0604	2021-05-21T00:00:00Z	145	4	31	21687	NC	<LOQ

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Avio Green	1,000	M	21-0543	2021-05-20T00:00:00Z	147	4	33	28038	NC	<LOQ
Avio Green	2,000	F	21-0657	2021-05-18T00:00:00Z	153	5	1	7734.589	248754.6	<LOQ
Avio Green	0	M	21-0584	2021-05-18T00:00:00Z	161	5	9	15245.18	481850.4	<LOQ
Avio Green	0	M	21-0583	2021-05-18T00:00:00Z	177	5	25	8267.658	226621.2	<LOQ
Avio Green	0	F	21-0735	2021-05-19T00:00:00Z	178	5	26	11565.87	325174.8	<LOQ
Avio Green	2,000	F	21-0717	2021-05-20T00:00:00Z	182	5	30	4607.695	255342.5	<LOQ
Avio Green	2,000	F	21-0658	2021-05-18T00:00:00Z	183	5	31	7762.695	288817.4	<LOQ
Avio Green	2,000	M	21-0507	2021-05-19T00:00:00Z	189	5	37	8090.777	264569.5	<LOQ
Avio Green	2,000	F	21-0666	2021-05-21T00:00:00Z	202	6	12	3261.775	175998.8	<LOQ
Avio Green	0	F	21-0739	2021-05-21T00:00:00Z	214	6	24	11010.43	406503.3	<LOQ
Avio Green	0	F	21-0652	2021-05-17T00:00:00Z	215	6	25	10541.63	390704.1	<LOQ
Avio Green	0	F	21-0651	2021-05-17T00:00:00Z	231	7	3	3175.623	328123.1	<LOQ
Avio Green	2,000	M	21-0610	2021-05-17T00:00:00Z	246	7	18	2536.32	190317.6	<LOQ
Avio Green	1,000	F	21-0630	2021-05-17T00:00:00Z	249	7	21	7901.382	374915.7	<LOQ
Avio Green	1,000	F	21-0627	2021-05-19T00:00:00Z	251	7	23	10835.09	352635.4	<LOQ
Avio Green	1,000	F	21-0742	2021-05-18T00:00:00Z	255	7	27	6576.564	358993.7	<LOQ
Avio Green	2,000	M	21-0504	2021-05-20T00:00:00Z	261	7	33	6416.196	288847.4	<LOQ
Avio Green	2,000	M	21-0503	2021-05-20T00:00:00Z	262	7	34	6002.877	272921	<LOQ
Avio Green	2,000	M	21-0508	2021-05-19T00:00:00Z	263	7	35	4338.032	341639.5	<LOQ
Avio Green	2,000	M	21-0566	2021-05-18T00:00:00Z	270	8	4	8125.438	276203.3	<LOQ
Avio Green	2,000	M	21-0565	2021-05-18T00:00:00Z	272	8	6	NC	240005.9	<LOQ
Avio Green	1,000	F	21-0628	2021-05-19T00:00:00Z	294	8	28	5396.063	250058.4	<LOQ
Avio Green	1,000	M	21-0603	2021-05-21T00:00:00Z	300	8	34	5041.026	213874.9	<LOQ
Avio Green	2,000	F	21-0655	2021-05-17T00:00:00Z	302	8	36	4355.712	212629.4	<LOQ
Avio Green	1,000	F	21-0629	2021-05-17T00:00:00Z	309	9	5	3158.005	221622.5	<LOQ

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Avio Green	0	M	21-0510	2021-05-21T00:00:00Z	313	9	9	4929.643	285178.6	<LOQ
Avio Green	1,000	F	21-0723	2021-05-21T00:00:00Z	314	9	10	7643.138	328892.5	<LOQ
Avio Green	1,000	M	21-0525	2021-05-19T00:00:00Z	317	9	13	NC	247216.5	295.1847
Avio Green	1,000	M	21-0544	2021-05-20T00:00:00Z	328	9	24	1825.62	208518.8	<LOQ
Avio Green	2,000	F	21-0656	2021-05-17T00:00:00Z	331	9	27	3877.464	213552.3	<LOQ
Avio Green	0	F	21-0736	2021-05-19T00:00:00Z	340	9	36	7599.763	329803.3	<LOQ
Avio Green	1,000	F	21-0650	2021-05-20T00:00:00Z	361	10	19	NC	237762.6	<LOQ
Buckeye	1,000	F	21-1465	9/22/2021	5	1	5	17857.5	304233.5	<LOQ
Buckeye	1,000	F	21-1490	9/23/2021	18	1	18	25460.25	233560.8	<LOQ
Buckeye	0	M	21-1392	9/22/2021	39	2	1	NC	155288.7	<LOQ
Buckeye	0	F	21-1496	9/24/2021	43	2	5	7265.096	240588.2	<LOQ
Buckeye	2,000	M	21-1436*	9/22/2021	48	2	10	2459.694	174540.6	<LOQ
Buckeye	0	F	21-1495	9/24/2021	54	2	16	4578.058	255421.6	<LOQ
Buckeye	0	F	21-1488	9/21/2021	56	2	18	NC	188668.8	<LOQ
Buckeye	2,000	F	21-1453	9/23/2021	69	2	31	5993.282	259069.3	<LOQ
Buckeye	0	F	21-1487	9/21/2021	71	2	33	NC	238194.9	<LOQ
Buckeye	2,000	M	21-1407*	9/21/2021	76	2	38			
Buckeye	1,000	M	21-1416*	9/20/2021	77	3	1	5189.286	244434.3	<LOQ
Buckeye	1,000	F	21-1466	9/22/2021	87	3	11	7760.816	322864.7	<LOQ
Buckeye	1,000	M	21-1423*	9/23/2021	93	3	17	2448.613	214688.7	<LOQ
Buckeye	2,000	M	21-1382*	9/23/2021	94	3	18	6403.71	187334.8	<LOQ
Buckeye	2,000	F	21-1475	9/24/2021	99	3	23	NC	NC	NC
Buckeye	2,000	M	21-1390*	9/24/2021	102	3	26	NC	NC	NC
Buckeye	1,000	F	21-1489	9/23/2021	103	3	27	NC	NC	NC
Buckeye	0	M	21-1419	9/23/2021	104	3	28	NC	NC	NC

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Buckeye	2,000	F	21-1473	9/21/2021	110	3	34	5899.694	331266.2	<LOQ
Buckeye	0	F	21-1448	9/23/2021	114	3	38			
Buckeye	2,000	M	21-1381*	9/23/2021	124	4	10	11265	559263	<LOQ
Buckeye	1,000	M	21-1379*	9/21/2021	133	4	19	NC	NC	NC
Buckeye	1,000	M	21-1396*	9/24/2021	134	4	20	NC	NC	NC
Buckeye	0	F	21-1492	9/22/2021	140	4	26	22242	575871	<LOQ
Buckeye	2,000	F	21-1476	9/24/2021	157	5	5	10762.17	296041.7	<LOQ
Buckeye	0	F	21-1455	9/20/2021	158	5	6	3215.073	238674.9	<LOQ
Buckeye	2,000	M	21-1406*	9/20/2021	166	5	14	4079.29	214019.5	<LOQ
Buckeye	2,000	M	21-1405*	9/20/2021	184	5	32	2192.209	208418.7	<LOQ
Buckeye	2,000	M	21-1435*	9/22/2021	188	5	36	NC	229494.3	<LOQ
Buckeye	2,000	F	21-1454	9/23/2021	190	5	38	9461.94	395400.6	<LOQ
Buckeye	2,000	F	21-1479	9/22/2021	192	6	2	9141.856	341555.5	<LOQ
Buckeye	2,000	F	21-1464	9/20/2021	198	6	8	5227.369	174294.1	<LOQ
Buckeye	2,000	M	21-1408*	9/21/2021	199	6	9	6707.512	160053	<LOQ
Buckeye	0	M	21-1418	9/20/2021	205	6	15	10222.66	317001.7	<LOQ
Buckeye	1,000	M	21-1395*	9/24/2021	217	6	27	14616.68	473862.8	<LOQ
Buckeye	2,000	F	21-1463	9/20/2021	220	6	30	5828.682	203441.8	<LOQ
Buckeye	1,000	M	21-1429*	9/22/2021	223	6	33	5450.266	205947.3	<LOQ
Buckeye	1,000	F	21-1443	9/20/2021	253	7	25	NC	387438	<LOQ
Buckeye	1,000	F	21-1467	9/21/2021	265	7	37	NC	298410.5	<LOQ
Buckeye	0	F	21-1456	9/20/2021	268	8	2	6978.863	248636.2	<LOQ
Buckeye	2,000	F	21-1474	9/21/2021	273	8	7	11751.4	300631	<LOQ
Buckeye	0	F	21-1447	9/23/2021	283	8	17	4428.526	264859.3	<LOQ
Buckeye	0	M	21-1387	9/24/2021	284	8	18	6203.432	238669.9	<LOQ

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Buckeye	1,000	F	21-1460	9/24/2021	287	8	21	7052.018	286089.3	<LOQ
Buckeye	1,000	M	21-1415*	9/20/2021	290	8	24	3597.285	220717.3	<LOQ
Buckeye	1,000	M	21-1424*	9/23/2021	291	8	25	4786.769	241117.8	<LOQ
Buckeye	0	F	21-1491	9/22/2021	299	8	33	8034.306	249731.7	<LOQ
Buckeye	0	M	21-1388	9/24/2021	303	8	37	12072.94	343692.9	<LOQ
Buckeye	1,000	F	21-1459	9/24/2021	306	9	2	9416.224	339832.8	<LOQ
Buckeye	0	M	21-1417	9/20/2021	311	9	7	NC	223676.1	NC
Buckeye	0	M	21-1386	9/21/2021	316	9	12	3997.297	266025.6	<LOQ
Buckeye	2,000	F	21-1480	9/22/2021	319	9	15	6150.408	294545.4	<LOQ
Buckeye	0	M	21-1385	9/21/2021	323	9	19	9693.099	289032.6	<LOQ
Buckeye	1,000	M	21-1430*	9/22/2021	327	9	23	15373.96	NC	<LOQ
Buckeye	0	M	21-1391	9/22/2021	334	9	30	7959.874	350884.8	<LOQ
Buckeye	1,000	F	21-1444	9/20/2021	343	10	1	3012.367	261626.9	<LOQ
Buckeye	1,000	M	21-1380*	9/21/2021	345	10	3	NC	247481.3	<LOQ
Buckeye	2,000	M	21-1389*	9/24/2021	354	10	12	7758.18	194984.3	<LOQ
Buckeye	1,000	F	21-1468	9/21/2021	362	10	20	4807.358	230582.1	<LOQ
ECOPOL A	0	F	21-1007	2021-06-30T00:00:00Z	22	1	22	23744.25	275413.6	<LOQ
ECOPOL A	2,000	F	21-1054	2021-06-28T00:00:00Z	25	1	25	15258.75	329260.2	<LOQ
ECOPOL A	2,000	F	21-1099	2021-07-02T00:00:00Z	29	1	29	25881	259038.2	<LOQ
ECOPOL A	2,000	M	21-0850	2021-07-02T00:00:00Z	30	1	30	14440.5	320700.1	<LOQ
ECOPOL A	1,000	F	21-1052	2021-07-02T00:00:00Z	33	1	33	19695	344359.3	<LOQ
ECOPOL A	2,000	M	21-0839	2021-07-01T00:00:00Z	41	2	3	NC	154586.8	NC
ECOPOL A	1,000	M	21-0763	2021-06-28T00:00:00Z	58	2	20	NC	193514.1	<LOQ
ECOPOL A	2,000	M	21-0853	2021-06-30T00:00:00Z	68	2	30	7398.309	238292	<LOQ
ECOPOL A	0	F	21-1032	2021-06-29T00:00:00Z	70	2	32	4340.797	241539.7	<LOQ

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ECOPOL A	2,000	F	21-1058	2021-06-30T00:00:00Z	75	2	37	NC	167220	<LOQ
ECOPOL A	2,000	M	21-0803	2021-06-28T00:00:00Z	79	3	3	<LOQ	210234.8	<LOQ
ECOPOL A	2,000	F	21-1103	2021-06-29T00:00:00Z	81	3	5	3094.024	NC	<LOQ
ECOPOL A	2,000	M	21-0854	2021-06-30T00:00:00Z	89	3	13	<LOQ	120674.5	<LOQ
ECOPOL A	0	M	21-0825	2021-06-30T00:00:00Z	92	3	16	5214.182	226329	<LOQ
ECOPOL A	2,000	M	21-0804	2021-06-28T00:00:00Z	106	3	30	NC	NC	NC
ECOPOL A	1,000	M	21-0757	2021-06-30T00:00:00Z	117	4	3	4614	NC	<LOQ
ECOPOL A	0	F	21-1059	2021-06-28T00:00:00Z	119	4	5	18690	NC	<LOQ
ECOPOL A	1,000	M	21-0781	2021-07-01T00:00:00Z	132	4	18	NC	NC	NC
ECOPOL A	1,000	F	21-1064	2021-06-30T00:00:00Z	138	4	24	12840	NC	<LOQ
ECOPOL A	2,000	F	21-1053	2021-06-28T00:00:00Z	141	4	27	20910	NC	<LOQ
ECOPOL A	0	F	21-1060	2021-06-28T00:00:00Z	143	4	29	18333	NC	<LOQ
ECOPOL A	1,000	M	21-0782	2021-07-01T00:00:00Z	148	4	34	17730	NC	<LOQ
ECOPOL A	0	F	21-1119	2021-07-02T00:00:00Z	150	4	36	13197	549333	<LOQ
ECOPOL A	2,000	F	21-1047	2021-07-01T00:00:00Z	151	4	37	15789	NC	<LOQ
ECOPOL A	0	M	21-0807	2021-07-02T00:00:00Z	168	5	16	13736.19	477330.3	<LOQ
ECOPOL A	2,000	M	21-0862	2021-06-29T00:00:00Z	171	5	19	11802.7	254702.3	<LOQ
ECOPOL A	2,000	F	21-1057	2021-06-30T00:00:00Z	185	5	33	7109.938	496902.5	<LOQ
ECOPOL A	0	M	21-0808	2021-07-02T00:00:00Z	187	5	35	5292.473	220809.9	<LOQ
ECOPOL A	0	F	21-1008	2021-06-30T00:00:00Z	191	6	1	NC	310567.7	<LOQ
ECOPOL A	1,000	F	21-1021	2021-06-28T00:00:00Z	193	6	3	7874.308	324743.8	<LOQ
ECOPOL A	0	M	21-0822	2021-06-28T00:00:00Z	194	6	4	NC	170077.1	<LOQ
ECOPOL A	1,000	M	21-0794	2021-06-29T00:00:00Z	196	6	6	NC	155817.5	<LOQ
ECOPOL A	0	F	21-1077	2021-07-01T00:00:00Z	201	6	11	11608.71	619957.5	<LOQ
ECOPOL A	1,000	F	21-1094	2021-06-29T00:00:00Z	207	6	17	6043.004	519576.3	<LOQ

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ECOPOL A	1,000	M	21-0764	2021-06-28T00:00:00Z	212	6	22	2029.53	221377	<LOQ
ECOPOL A	1,000	F	21-1066	2021-07-01T00:00:00Z	222	6	32	10221.87	428455	<LOQ
ECOPOL A	1,000	F	21-1051	2021-07-02T00:00:00Z	226	6	36	5992.741	359772.9	<LOQ
ECOPOL A	1,000	F	21-1063	2021-06-30T00:00:00Z	232	7	4	5675.561	311682.4	<LOQ
ECOPOL A	2,000	F	21-1048	2021-07-01T00:00:00Z	248	7	20	1983.079	287210	<LOQ
ECOPOL A	0	F	21-1031	2021-06-29T00:00:00Z	252	7	24	NC	317685.9	<LOQ
ECOPOL A	2,000	M	21-0840	2021-07-01T00:00:00Z	256	7	28	4778.321	260744.7	<LOQ
ECOPOL A	0	M	21-0815	2021-06-29T00:00:00Z	260	7	32	6757.665	273850.5	<LOQ
ECOPOL A	0	M	21-0826	2021-06-30T00:00:00Z	274	8	8	8151.813	315559.5	<LOQ
ECOPOL A	2,000	M	21-0861	2021-06-29T00:00:00Z	277	8	11	3996.83	163194.3	<LOQ
ECOPOL A	0	M	21-0821	2021-06-28T00:00:00Z	282	8	16	NC	193138.3	<LOQ
ECOPOL A	1,000	M	21-0795	2021-07-02T00:00:00Z	292	8	26	2515.19	190194.8	<LOQ
ECOPOL A	1,000	F	21-1093	2021-06-29T00:00:00Z	296	8	30	6146.329	251495.7	<LOQ
ECOPOL A	0	M	21-0873	2021-07-01T00:00:00Z	298	8	32	5375.286	160358.5	<LOQ
ECOPOL A	0	F	21-1120	2021-07-02T00:00:00Z	305	9	1	NC	254434.7	<LOQ
ECOPOL A	0	F	21-1078	2021-07-01T00:00:00Z	324	9	20	6213.341	NC	<LOQ
ECOPOL A	1,000	F	21-1065	2021-07-01T00:00:00Z	330	9	26	7141.3	279499.9	<LOQ
ECOPOL A	2,000	F	21-1100	2021-07-02T00:00:00Z	337	9	33	2564.038	305667.9	<LOQ
ECOPOL A	1,000	M	21-0758	2021-06-30T00:00:00Z	342	9	38	7101.613	281733.2	<LOQ
ECOPOL A	0	M	21-0816	2021-06-29T00:00:00Z	348	10	6	3605.161	214177.8	<LOQ
ECOPOL A	2,000	F	21-1104	2021-07-23T00:00:00Z	356	10	14	5646.411	324267.4	<LOQ
ECOPOL A	1,000	M	21-0796	2021-07-02T00:00:00Z	357	10	15	3716.261	257391.9	<LOQ
ENVIRO USP	1,000	M	21-0889	2021-07-12T00:00:00Z	7	1	7	25303.5	286715	<LOQ
ENVIRO USP	1,000	M	21-0924	2021-07-16T00:00:00Z	11	1	11	29214.75	203857.4	<LOQ
ENVIRO USP	1,000	M	21-0906	2021-07-13T00:00:00Z	23	1	23	21371.25	252954	<LOQ

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ENVIRO USP	0	M	21-0918	2021-07-14T00:00:00Z	36	1	36			
ENVIRO USP	2,000	M	21-0926	2021-07-16T00:00:00Z	38	1	38	17783.25	231293.7	<LOQ
ENVIRO USP	2,000	M	21-0909	2021-07-14T00:00:00Z	42	2	4	NC	198018.6	<LOQ
ENVIRO USP	0	M	21-0965	2021-07-15T00:00:00Z	49	2	11	4347.867	171748.7	<LOQ
ENVIRO USP	0	M	21-0886	2021-07-12T00:00:00Z	52	2	14	<LOQ	173059.9	<LOQ
ENVIRO USP	2,000	F	21-1210	2021-07-14T00:00:00Z	60	2	22	5792.935	239063.2	<LOQ
ENVIRO USP	0	M	21-0917	2021-07-14T00:00:00Z	67	2	29	5138.213	184146.5	<LOQ
ENVIRO USP	2,000	F	21-1130	2021-07-13T00:00:00Z	84	3	8	<LOQ	223149.7	<LOQ
ENVIRO USP	0	F	21-1157	2021-07-14T00:00:00Z	90	3	14	3251.186	265492.5	<LOQ
ENVIRO USP	2,000	M	21-0910	2021-07-14T00:00:00Z	101	3	25	NC	NC	NC
ENVIRO USP	1,000	F	21-1194	2021-07-16T00:00:00Z	105	3	29	NC	NC	NC
ENVIRO USP	2,000	F	21-1209	2021-07-14T00:00:00Z	107	3	31	NC	NC	NC
ENVIRO USP	0	F	21-1158	2021-07-14T00:00:00Z	109	3	33	5705.786	312487.2	<LOQ
ENVIRO USP	0	M	21-0901	2021-07-16T00:00:00Z	111	3	35	3748.773	242739	<LOQ
ENVIRO USP	2,000	F	21-1163	2021-07-16T00:00:00Z	115	4	1	14016	557610	185.79
ENVIRO USP	2,000	M	21-0943	2021-07-15T00:00:00Z	120	4	6	20337	446835	<LOQ
ENVIRO USP	1,000	F	21-1152	2021-07-12T00:00:00Z	121	4	7	16119	NC	<LOQ
ENVIRO USP	0	M	21-0966	2021-07-15T00:00:00Z	135	4	21	NC	NC	NC
ENVIRO USP	2,000	F	21-1129	2021-07-13T00:00:00Z	137	4	23	19983	NC	<LOQ
ENVIRO USP	0	M	21-0955	2021-07-13T00:00:00Z	144	4	30	16506	593997	<LOQ
ENVIRO USP	1,000	M	21-0890	2021-07-12T00:00:00Z	146	4	32	6627	554088	169.38
ENVIRO USP	0	F	21-1196	2021-07-13T00:00:00Z	160	5	8	4897.469	245443	<LOQ
ENVIRO USP	1,000	M	21-0945	2021-07-14T00:00:00Z	163	5	11	5453.356	158717.9	<LOQ
ENVIRO USP	2,000	M	21-0925	2021-07-16T00:00:00Z	164	5	12	8544.32	228737.8	<LOQ
ENVIRO USP	1,000	M	21-0905	2021-07-13T00:00:00Z	179	5	27	5219.308	314633.1	<LOQ

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ENVIRO USP	2,000	F	21-1197	2021-07-15T00:00:00Z	195	6	5	7286.975	462023.3	<LOQ
ENVIRO USP	1,000	F	21-1204	2021-07-13T00:00:00Z	211	6	21	12732.33	446435.2	<LOQ
ENVIRO USP	2,000	M	21-0967	2021-07-12T00:00:00Z	213	6	23	8623.734	384942.5	<LOQ
ENVIRO USP	0	F	21-1181	2021-07-12T00:00:00Z	218	6	28	11086.31	396969	<LOQ
ENVIRO USP	1,000	F	21-1151	2021-07-12T00:00:00Z	221	6	31	7881.303	227083.3	<LOQ
ENVIRO USP	0	F	21-1182	2021-07-12T00:00:00Z	233	7	5	1413.706	284407.5	<LOQ
ENVIRO USP	1,000	M	21-0946	2021-07-14T00:00:00Z	234	7	6	9009.297	311051.4	<LOQ
ENVIRO USP	0	F	21-1190	2021-07-16T00:00:00Z	236	7	8	6515.272	520244.9	<LOQ
ENVIRO USP	1,000	M	21-0888	2021-07-15T00:00:00Z	239	7	11	259.571	171946	<LOQ
ENVIRO USP	2,000	M	21-0968	2021-07-12T00:00:00Z	242	7	14	2,000.32	155144.2	<LOQ
ENVIRO USP	2,000	M	21-0944	2021-07-15T00:00:00Z	247	7	19	3935.03	132935.5	<LOQ
ENVIRO USP	0	F	21-1185	2021-07-15T00:00:00Z	259	7	31	4873.83	331175.8	<LOQ
ENVIRO USP	1,000	F	21-1236	2021-07-15T00:00:00Z	271	8	5	2690.056	260164.6	<LOQ
ENVIRO USP	2,000	M	21-0977	2021-07-13T00:00:00Z	275	8	9	5325.406	264177.4	<LOQ
ENVIRO USP	1,000	F	21-1235	2021-07-15T00:00:00Z	278	8	12	7195.78	243413.2	<LOQ
ENVIRO USP	0	F	21-1186	2021-07-15T00:00:00Z	288	8	22	2504.989	230810.4	<LOQ
ENVIRO USP	0	M	21-0902	2021-07-16T00:00:00Z	293	8	27	1945.714	213610.3	<LOQ
ENVIRO USP	1,000	M	21-0923	2021-07-16T00:00:00Z	295	8	29	NC	178046.1	NC
ENVIRO USP	1,000	F	21-1203	2021-07-13T00:00:00Z	308	9	4	6594.604	305077.7	<LOQ
ENVIRO USP	1,000	M	21-0887	2021-07-15T00:00:00Z	310	9	6	5851.983	338737.7	<LOQ
ENVIRO USP	0	F	21-1189	2021-07-16T00:00:00Z	312	9	8	NC	245372.6	<LOQ
ENVIRO USP	2,000	F	21-1198	2021-07-15T00:00:00Z	321	9	17	5606.454	NC	<LOQ
ENVIRO USP	1,000	F	21-1133	2021-07-14T00:00:00Z	322	9	18	6303.953	356083.9	<LOQ
ENVIRO USP	2,000	F	21-1207	2021-07-12T00:00:00Z	333	9	29	6012.1	262036.9	<LOQ
ENVIRO USP	1,000	F	21-1134	2021-07-14T00:00:00Z	338	9	34	4478.923	289234.1	<LOQ

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ENVIRO USP	0	M	21-0956	2021-07-13T00:00:00Z	346	10	4	5432.32	189422.5	<LOQ
ENVIRO USP	0	M	21-0885	2021-07-12T00:00:00Z	349	10	7	4144.852	256037.6	<LOQ
ENVIRO USP	2,000	F	21-1208	2021-07-12T00:00:00Z	351	10	9	NC	226703.8	<LOQ
ENVIRO USP	0	F	21-1195	2021-07-13T00:00:00Z	355	10	13	2548.956	244788.7	<LOQ
ENVIRO USP	2,000	M	21-0978	2021-07-13T00:00:00Z	359	10	17	5230.274	243349.4	<LOQ
NFD 20-391	2,000	F	21-1212	2021-07-19T00:00:00Z	3	1	3	18158.25	257741	<LOQ
NFD 20-391	0	F	21-1148	2021-07-19T00:00:00Z	17	1	17	22971	300567.2	<LOQ
NFD 20-391	2,000	F	21-1171	2021-07-22T00:00:00Z	20	1	20	24196.5	252826.6	<LOQ
NFD 20-391	1,000	M	21-0896	2021-07-21T00:00:00Z	27	1	27	28336.5	234116.2	<LOQ
NFD 20-391	2,000	M	21-0899	2021-07-22T00:00:00Z	45	2	7	3107.863	127771.9	<LOQ
NFD 20-391	2,000	M	21-0932	2021-07-21T00:00:00Z	64	2	26	7271.963	305101.9	<LOQ
NFD 20-391	0	F	21-1241	2021-07-22T00:00:00Z	88	3	12	3656.06	287390.8	<LOQ
NFD 20-391	2,000	F	21-1142	2021-07-21T00:00:00Z	131	4	17	22866	NC	<LOQ
NFD 20-391	0	M	21-0881	2021-07-19T00:00:00Z	154	5	2	5483.085	246216.5	<LOQ
NFD 20-391	0	F	21-1246	2021-07-21T00:00:00Z	156	5	4	11332.84	329678.7	<LOQ
NFD 20-391	1,000	F	21-1149	2021-07-19T00:00:00Z	159	5	7	3202.591	221246.3	<LOQ
NFD 20-391	2,000	M	21-0990	2021-07-19T00:00:00Z	169	5	17	2535.639	254986.7	<LOQ
NFD 20-391	0	F	21-1242	2021-07-22T00:00:00Z	172	5	20	10693.5	294651.1	<LOQ
NFD 20-391	1,000	M	21-0972	2021-07-22T00:00:00Z	175	5	23	3530.167	154106.3	<LOQ
NFD 20-391	0	M	21-1006	2021-07-21T00:00:00Z	180	5	28	3975.298	223923.1	<LOQ
NFD 20-391	1,000	F	21-1200	2021-07-21T00:00:00Z	186	5	34	5658.329	250997	<LOQ
NFD 20-391	1,000	M	21-0904	2021-07-19T00:00:00Z	203	6	13	7917.089	343303.4	<LOQ
NFD 20-391	0	M	21-1002	2021-07-22T00:00:00Z	206	6	16	6549.291	218867.4	<LOQ
NFD 20-391	0	M	21-0882	2021-07-19T00:00:00Z	208	6	18	11036.5	339754.6	<LOQ
NFD 20-391	2,000	F	21-1211	2021-07-19T00:00:00Z	225	6	35	12916.23	333377.5	<LOQ

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NFD 20-391	1,000	F	21-1224	2021-07-22T00:00:00Z	228	6	38	10491.98	247912.3	<LOQ
NFD 20-391	2,000	M	21-0900	2021-07-22T00:00:00Z	235	7	7	3568.895	162581.2	<LOQ
NFD 20-391	0	F	21-1245	2021-07-21T00:00:00Z	243	7	15	4388.987	397638.3	<LOQ
NFD 20-391	0	F	21-1147	2021-07-19T00:00:00Z	267	8	1	3210.149	253099.4	<LOQ
NFD 20-391	1,000	M	21-0903	2021-07-19T00:00:00Z	279	8	13	2392.329	286219	<LOQ
NFD 20-391	1,000	M	21-0895	2021-07-21T00:00:00Z	285	8	19	<LOQ	193055.7	<LOQ
NFD 20-391	1,000	F	21-1150	2021-07-19T00:00:00Z	297	8	31	6743.564	236168.1	<LOQ
NFD 20-391	2,000	M	21-0989	2021-07-19T00:00:00Z	304	8	38	NC	172375.6	<LOQ
NFD 20-391	0	M	21-1001	2021-07-22T00:00:00Z	318	9	14	10823.35	349884.8	<LOQ
NFD 20-391	1,000	M	21-0971	2021-07-22T00:00:00Z	326	9	22	3268.851	206867.2	<LOQ
NFD 20-391	2,000	F	21-1172	2021-07-22T00:00:00Z	329	9	25	4148.546	311137	<LOQ
NFD 20-391	2,000	F	21-1141	2021-07-21T00:00:00Z	332	9	28	3587.867	279712	<LOQ
NFD 20-391	1,000	F	21-1225	2021-07-22T00:00:00Z	335	9	31	1558.656	205946	<LOQ
NFD 20-391	0	M	21-1005	2021-07-21T00:00:00Z	336	9	32	2510.987	233032.3	<LOQ
NFD 20-391	1,000	F	21-1199	2021-07-21T00:00:00Z	341	9	37	6137.217	NC	<LOQ
NFD 20-391	2,000	M	21-0931	2021-07-21T00:00:00Z	344	10	2	7311.885	200522.4	<LOQ
NRL 502W	2,000	M	21-0531	2021-05-28T00:00:00Z	21	1	21	24042	204491.3	<LOQ
NRL 502W	1,000	F	21-0701	2021-05-26T00:00:00Z	28	1	28	15240.75	287722.5	<LOQ
NRL 502W	0	M	21-0591	2021-05-28T00:00:00Z	35	1	35			
NRL 502W	2,000	M	21-0511	2021-05-24T00:00:00Z	46	2	8	2343.318	204591	<LOQ
NRL 502W	1,000	M	21-0586	2021-05-24T00:00:00Z	50	2	12	NC	118480.4	<LOQ
NRL 502W	2,000	F	21-0632	2021-05-24T00:00:00Z	51	2	13	5413.649	211406.9	<LOQ
NRL 502W	1,000	M	21-0597	2021-05-26T00:00:00Z	53	2	15			
NRL 502W	1,000	F	21-0668	2021-05-28T00:00:00Z	65	2	27	NC	280242	<LOQ
NRL 502W	2,000	M	21-0561	2021-05-26T00:00:00Z	73	2	35	NC	217031.7	<LOQ

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NRL 502W	0	F	21-0689	2021-05-24T00:00:00Z	74	2	36	3434.952	229183.7	<LOQ
NRL 502W	2,000	F	21-0654	2021-05-28T00:00:00Z	78	3	2	5961.614	283488.3	<LOQ
NRL 502W	0	F	21-0698	2021-05-25T00:00:00Z	80	3	4	NC	331333.4	<LOQ
NRL 502W	0	M	21-0537	2021-05-27T00:00:00Z	83	3	7	3074.651	174445.4	384.237
NRL 502W	1,000	F	21-0693	2021-05-25T00:00:00Z	86	3	10	2534.323	235737.7	<LOQ
NRL 502W	2,000	F	21-0653	2021-05-28T00:00:00Z	95	3	19	5028.122	271342.7	<LOQ
NRL 502W	1,000	F	21-0712	2021-05-27T00:00:00Z	96	3	20	4613.086	274501.3	<LOQ
NRL 502W	2,000	M	21-0587	2021-05-27T00:00:00Z	100	3	24	NC	NC	NC
NRL 502W	1,000	M	21-0598	2021-05-26T00:00:00Z	108	3	32	3548.574	206574.7	<LOQ
NRL 502W	2,000	M	21-0562	2021-05-26T00:00:00Z	113	3	37	7117.164	128419.2	<LOQ
NRL 502W	2,000	M	21-0512	2021-05-24T00:00:00Z	123	4	9	14292	464763	<LOQ
NRL 502W	1,000	M	21-0595	2021-05-28T00:00:00Z	127	4	13	3831	440241	141.48
NRL 502W	0	F	21-0686	2021-05-28T00:00:00Z	136	4	22	20277	NC	<LOQ
NRL 502W	2,000	M	21-0532	2021-05-28T00:00:00Z	155	5	3	9077.063	270812.3	<LOQ
NRL 502W	1,000	F	21-0711	2021-05-27T00:00:00Z	165	5	13	16020.59	422927.4	<LOQ
NRL 502W	2,000	F	21-0687	2021-05-26T00:00:00Z	167	5	15	13257.42	397843.2	<LOQ
NRL 502W	0	F	21-0633	2021-05-26T00:00:00Z	170	5	18	2230.852	214806.6	<LOQ
NRL 502W	0	M	21-0578	2021-05-24T00:00:00Z	197	6	7	8736.265	287389.2	<LOQ
NRL 502W	0	F	21-0685	2021-05-28T00:00:00Z	200	6	10	8452.525	245228.9	<LOQ
NRL 502W	0	M	21-0538	2021-05-27T00:00:00Z	209	6	19	11676.13	357044.7	<LOQ
NRL 502W	0	M	21-0612	2021-05-26T00:00:00Z	210	6	20	3827.705	253919.1	<LOQ
NRL 502W	1,000	M	21-0614	2021-05-25T00:00:00Z	216	6	26	4274.604	354056.7	<LOQ
NRL 502W	1,000	M	21-0585	2021-05-24T00:00:00Z	219	6	29	NC	219586.2	<LOQ
NRL 502W	2,000	F	21-0688	2021-05-26T00:00:00Z	224	6	34	13008.54	343001.2	<LOQ
NRL 502W	1,000	F	21-0667	2021-05-28T00:00:00Z	229	7	1	8180.987	277121.2	<LOQ

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NRL 502W	1,000	M	21-0613	2021-05-25T00:00:00Z	237	7	9	11733.41	398595.9	<LOQ
NRL 502W	2,000	F	21-0678	2021-05-25T00:00:00Z	240	7	12	6909.288	304186	<LOQ
NRL 502W	2,000	F	21-0670	2021-05-27T00:00:00Z	244	7	16	12585.59	304631.7	<LOQ
NRL 502W	2,000	M	21-0588	2021-05-27T00:00:00Z	250	7	22	NC	198527.3	<LOQ
NRL 502W	2,000	M	21-0520	2021-05-25T00:00:00Z	254	7	26	3266.031	279283.2	<LOQ
NRL 502W	0	F	21-0734	2021-05-27T00:00:00Z	264	7	36	3932.829	291318.8	<LOQ
NRL 502W	0	M	21-0589	2021-05-25T00:00:00Z	266	7	38	NC	302502.5	NC
NRL 502W	2,000	F	21-0631	2021-05-24T00:00:00Z	269	8	3	7955.673	288664.4	<LOQ
NRL 502W	0	F	21-0690	2021-05-24T00:00:00Z	276	8	10	3914.999	264606.8	<LOQ
NRL 502W	1,000	F	21-0695	2021-05-24T00:00:00Z	289	8	23	3622.813	237151.8	<LOQ
NRL 502W	0	F	21-0733	2021-05-27T00:00:00Z	301	8	35	4678.951	207989	<LOQ
NRL 502W	2,000	F	21-0677	2021-05-25T00:00:00Z	307	9	3	3628.369	260896.4	<LOQ
NRL 502W	0	M	21-0577	2021-05-24T00:00:00Z	315	9	11	7240.622	295049.3	<LOQ
NRL 502W	1,000	M	21-0596	2021-05-28T00:00:00Z	352	10	10	4050.918	205356.1	<LOQ
NRL 502W	0	M	21-0611	2021-05-26T00:00:00Z	358	10	16	6775.466	224254.1	<LOQ
NRL 502W	1,000	F	21-0696	2021-05-24T00:00:00Z	360	10	18	2925.915	309430.7	<LOQ
Re-Healing	2,000	F	21-1092	2021-06-21T00:00:00Z	2	1	2	14289	301591	<LOQ
Re-Healing	2,000	M	21-0831	2021-06-21T00:00:00Z	10	1	10	22822.5	287853.9	<LOQ
Re-Healing	1,000	F	21-1117	2021-06-23T00:00:00Z	12	1	12	27589.5	232544.4	<LOQ
Re-Healing	1,000	M	21-0819	2021-06-21T00:00:00Z	13	1	13	25856.25	254880.6	<LOQ
Re-Healing	2,000	M	21-0832	2021-06-21T00:00:00Z	19	1	19	25896	253938.6	<LOQ
Re-Healing	2,000	M	21-0835	2021-06-24T00:00:00Z	24	1	24	20192.25	198174.8	<LOQ
Re-Healing	1,000	M	21-0774	2021-06-25T00:00:00Z	31	1	31	20701.5	280769.5	<LOQ
Re-Healing	1,000	F	21-1038	2021-06-25T00:00:00Z	32	1	32	15781.5	299310.1	<LOQ
Re-Healing	1,000	F	21-1037	2021-06-25T00:00:00Z	37	1	37			

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Re-Healing	1,000	F	21-1036	2021-06-24T00:00:00Z	40	2	2	NC	220122.7	<LOQ
Re-Healing	2,000	F	21-1076	2021-06-24T00:00:00Z	57	2	19	NC	259592.8	<LOQ
Re-Healing	0	F	21-1083	2021-06-24T00:00:00Z	59	2	21	5920.356	220785.8	<LOQ
Re-Healing	2,000	F	21-1039	2021-06-25T00:00:00Z	61	2	23	5193.757	269915	<LOQ
Re-Healing	0	F	21-1069	2021-06-22T00:00:00Z	63	2	25	<LOQ	303037.8	<LOQ
Re-Healing	2,000	F	21-1125	2021-06-22T00:00:00Z	66	2	28	4028.185	178225.7	<LOQ
Re-Healing	0	M	21-0857	2021-06-25T00:00:00Z	72	2	34	2839.267	162261.1	<LOQ
Re-Healing	0	M	21-0814	2021-06-23T00:00:00Z	82	3	6	<LOQ	232808.7	<LOQ
Re-Healing	1,000	M	21-0872	2021-06-23T00:00:00Z	97	3	21	3832.299	224708.8	<LOQ
Re-Healing	1,000	F	21-1035	2021-06-24T00:00:00Z	116	4	2	20127	468105	<LOQ
Re-Healing	2,000	M	21-0870	2021-06-22T00:00:00Z	118	4	4	14895	NC	<LOQ
Re-Healing	0	M	21-0797	2021-06-24T00:00:00Z	128	4	14	12909	NC	291.06
Re-Healing	0	F	21-1070	2021-06-22T00:00:00Z	129	4	15	22683	NC	<LOQ
Re-Healing	1,000	M	21-0844	2021-06-22T00:00:00Z	130	4	16	15819	NC	<LOQ
Re-Healing	0	F	21-1027	2021-06-23T00:00:00Z	139	4	25	4431	482250	<LOQ
Re-Healing	2,000	F	21-1075	2021-06-24T00:00:00Z	149	4	35	20238	NC	<LOQ
Re-Healing	1,000	F	21-1118	2021-06-23T00:00:00Z	152	4	38	2505.514	852012.9	<LOQ
Re-Healing	0	F	21-1084	2021-06-24T00:00:00Z	162	5	10	7183.8	290402.7	<LOQ
Re-Healing	2,000	F	21-1126	2021-06-22T00:00:00Z	173	5	21	11366.29	457778.7	<LOQ
Re-Healing	0	F	21-1033	2021-06-25T00:00:00Z	174	5	22	8631.101	296073.2	<LOQ
Re-Healing	1,000	F	21-1095	2021-06-21T00:00:00Z	176	5	24	5610.191	245831	<LOQ
Re-Healing	1,000	M	21-0820	2021-06-21T00:00:00Z	181	5	29	3371.247	243006.7	<LOQ
Re-Healing	2,000	M	21-0790	2021-06-23T00:00:00Z	204	6	14	NC	265905.9	<LOQ
Re-Healing	2,000	F	21-1040	2021-06-25T00:00:00Z	227	6	37	7560.884	311314.2	<LOQ
Re-Healing	2,000	M	21-0836	2021-06-24T00:00:00Z	230	7	2	8760.801	397029.2	<LOQ

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Re-Healing	2,000	M	21-0869	2021-06-22T00:00:00Z	238	7	10	11451.01	503993.5	<LOQ
Re-Healing	2,000	M	21-0786	2021-06-25T00:00:00Z	241	7	13	NC	222090.7	<LOQ
Re-Healing	0	M	21-0813	2021-06-23T00:00:00Z	245	7	17	2010.29	209072.6	<LOQ
Re-Healing	0	M	21-0798	2021-06-24T00:00:00Z	257	7	29	NC	294471.2	<LOQ
Re-Healing	1,000	F	21-1096	2021-06-21T00:00:00Z	258	7	30	1327.482	213287	<LOQ
Re-Healing	1,000	M	21-0773	2021-06-25T00:00:00Z	280	8	14	3420.44	321385.7	229.2386
Re-Healing	0	M	21-0769	2021-06-22T00:00:00Z	281	8	15	5991.819	237077.9	<LOQ
Re-Healing	2,000	M	21-0785	2021-06-25T00:00:00Z	286	8	20	1918.601	192923.7	<LOQ
Re-Healing	1,000	M	21-0871	2021-06-23T00:00:00Z	320	9	16	2093.306	279399.1	<LOQ
Re-Healing	1,000	M	21-0843	2021-06-22T00:00:00Z	325	9	21	5924.212	312464.6	<LOQ
Re-Healing	0	M	21-0858	2021-06-25T00:00:00Z	339	9	35	4642.503	205627	<LOQ
Re-Healing	0	M	21-0877	2021-06-21T00:00:00Z	347	10	5	2,000.104	243259.5	<LOQ
Re-Healing	0	F	21-1034	2021-06-25T00:00:00Z	350	10	8	4829.357	313355.8	<LOQ
Re-Healing	1,000	F	21-1087	2021-06-22T00:00:00Z	353	10	11	2738.39	239431.5	<LOQ

Table K-11. Avio Green Clinical Chemistry Data

Nec. date	Run date	ID	Sex	Dose (mg/L)	ALB (g/dL)	ALB / GLOB ratio (g/dL)	ALT (U/L)	AST (U/L)	BUN (mg/dL)	BUN / CREA ratio	CHOL (mg/dL)	CREA (mg/dL)	GLOB calc. (g/dL)	GLU (mg/dL)	TP (g/dL)	TRIG (g/dL)
18-May-21	27-Jul-21	643	F	0	3.8	1.65	28	130	24	120.00	178	0.2	2.3	155	6.1	142
18-May-21	27-Jul-21	644	F	0	3.8	2.00	27	152	18	90.00	91	0.2	1.9	220	5.7	64
17-May-21	27-Jul-21	651	F	0	3.8	1.73	29	154	17	56.67	142	0.3	2.2	163	6.0	130
17-May-21	27-Jul-21	652	F	0	3.8	1.81	22	110	21	105.00	141	0.2	2.1	170	5.9	97
19-May-21	27-Jul-21	735	F	0	3.8	1.81	36	157	20	66.67	143	0.3	2.1	182	5.9	95
19-May-21	27-Jul-21	736	F	0	3.4	2.13	29	136	16	160.00	87	0.1	1.6	240	5.0	55
20-May-21	28-Jul-21	737	F	0	3.5	1.67	24	127	20	200.00	147	0.1	2.1	153	5.6	75
20-May-21	28-Jul-21	738	F	0	3.3	1.32	24	105	22	220.00	147	0.1	2.5	190	5.8	237
21-May-21	28-Jul-21	739	F	0	3.8	1.52	28	221	16	160.00	127	0.1	2.5	162	6.3	142
21-May-21	28-Jul-21	740	F	0	4.0	1.74	43	368	20	NA	156	0.1	2.3	201	6.3	120
19-May-21	27-Jul-21	641	F	125	3.5	1.59	29	201	17	85.00	112	0.2	2.2	151	5.7	119
19-May-21	27-Jul-21	642	F	125	3.2	1.68	23	156	18	180.00	129	0.1	1.9	205	5.1	99
17-May-21	27-Jul-21	661	F	125	3.9	1.50	33	227	19	190.00	211	0.1	2.6	150	6.5	138
17-May-21	27-Jul-21	662	F	125	3.2	1.19	33	443	61	87.14	169	0.7	2.7	157	5.9	95
21-May-21	28-Jul-21	663	F	125	3.6	1.38	37	289	19	190.00	153	0.1	2.6	211	6.2	127
21-May-21	28-Jul-21	664	F	125	3.6	1.50	30	235	20	200.00	150	0.1	2.4	154	6.0	104
18-May-21	27-Jul-21	681	F	125	3.7	1.61	43	327	16	160.00	174	0.1	2.3	169	6.0	125
18-May-21	27-Jul-21	682	F	125	4.0	1.48	38	266	16	NA	130	0.1	2.7	151	6.7	54

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20-May-21	28-Jul-21	721	F	125	3.6	1.80	22	142	33	110.00	125	0.3	2.0	165	5.6	88
20-May-21	28-Jul-21	722	F	125	3.7	1.42	32	158	18	90.00	165	0.2	2.6	164	6.3	171
17-May-21	27-Jul-21	659	F	250	3.8	1.41	41	508	20	100.00	137	0.2	2.7	180	6.5	86
17-May-21	27-Jul-21	660	F	250	3.7	1.42	40	354	18	NA	196	0.1	2.6	141	6.3	92
18-May-21	27-Jul-21	675	F	250	3.9	1.56	46	350	16	160.00	112	0.1	2.5	192	6.4	84
18-May-21	27-Jul-21	676	F	250	3.3	1.32	27	277	19	NA	124	0.1	2.5	170	5.8	78
20-May-21	28-Jul-21	683	F	250	3.7	1.68	22	157	16	80.00	117	0.2	2.2	176	5.9	120
20-May-21	28-Jul-21	684	F	250	3.6	1.44	25	152	20	200.00	151	0.1	2.5	167	6.1	154
21-May-21	28-Jul-21	699	F	250	3.9	1.77	45	392	16	NA	146	0.1	2.2	150	6.1	119
21-May-21	28-Jul-21	700	F	250	3.7	1.54	33	356	16	80.00	184	0.2	2.4	169	6.1	94
19-May-21	27-Jul-21	731	F	250	3.6	1.80	20	145	18	90.00	157	0.2	2.0	202	5.6	120
19-May-21	27-Jul-21	732	F	250	3.3	1.06	24	123	17	56.67	142	0.3	3.1	160	6.4	124
18-May-21	27-Jul-21	625	F	500	3.7	1.76	19	111	19	95.00	152	0.2	2.1	179	5.8	95
18-May-21	27-Jul-21	626	F	500	3.7	1.54	25	173	22	110.00	176	0.2	2.4	186	6.1	168
19-May-21	27-Jul-21	647	F	500	3.3	1.50	21	159	21	70.00	161	0.3	2.2	151	5.5	67
19-May-21	27-Jul-21	648	F	500	3.5	1.67	26	176	32	64.00	119	0.5	2.1	162	5.6	144
21-May-21	28-Jul-21	671	F	500	3.9	1.63	48	598	27	90.00	144	0.3	2.4	147	6.3	111
21-May-21	28-Jul-21	672	F	500	3.9	1.50	57	431	23	NA	171	0.1	2.6	165	6.5	120
20-May-21	28-Jul-21	713	F	500	3.8	1.58	28	175	18	45.00	164	0.4	2.4	176	6.2	93
20-May-21	28-Jul-21	714	F	500	3.5	1.67	40	194	18	90.00	155	0.2	2.1	171	5.6	70
17-May-21	27-Jul-21	725	F	500	3.9	1.86	26	240	20	NA	158	0.1	2.1	172	6.0	122

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17-May-21	27-Jul-21	726	F	500	3.8	1.65	39	379	18	NA	178	0.1	2.3	147	6.1	53
19-May-21	27-Jul-21	627	F	1,000	3.7	1.76	28	122	22	73.33	149	0.3	2.1	140	5.8	69
19-May-21	27-Jul-21	628	F	1,000	3.7	1.23	37	150	14	70.00	156	0.2	3.0	135	6.7	117
17-May-21	27-Jul-21	629	F	1,000	3.6	1.38	46	223	45	64.29	91	0.7	2.6	137	6.2	78
17-May-21	27-Jul-21	630	F	1,000	3.8	1.81	28	110	21	70.00	198	0.3	2.1	146	5.9	76
20-May-21	28-Jul-21	649	F	1,000	3.8	1.81	25	152	21	105.00	124	0.2	2.1	153	5.9	51
20-May-21	28-Jul-21	650	F	1,000	3.4	1.31	21	109	16	160.00	127	0.1	2.6	169	6.0	60
21-May-21	28-Jul-21	723	F	1,000	4.0	1.54	28	192	18	180.00	130	0.1	2.6	164	6.6	63
21-May-21	28-Jul-21	724	F	1,000	3.7	1.76	31	328	19	190.00	93	0.1	2.1	177	5.8	97
18-May-21	27-Jul-21	741	F	1,000	3.9	1.50	42	277	21	105.00	152	0.2	2.6	195	6.5	66
18-May-21	27-Jul-21	742	F	1,000	3.8	1.65	26	237	15	150.00	134	0.1	2.3	191	6.1	88
17-May-21	27-Jul-21	655	F	2,000	3.9	1.95	25	173	19	95.00	177	0.2	2.0	124	5.9	104
17-May-21	27-Jul-21	656	F	2,000	3.5	1.84	23	181	18	90.00	125	0.2	1.9	206	5.4	66
18-May-21	27-Jul-21	657	F	2,000	3.5	1.46	24	200	26	65.00	172	0.4	2.4	177	5.9	77
18-May-21	27-Jul-21	658	F	2,000	3.8	1.58	38	299	26	86.67	205	0.3	2.4	181	6.2	79
21-May-21	28-Jul-21	666	F	2,000	3.8	1.65	35	412	50	55.56	120	0.9	2.3	137	6.1	71
20-May-21	28-Jul-21	717	F	2,000	3.8	1.58	19	147	14	70.00	180	0.2	2.4	130	6.2	78
20-May-21	28-Jul-21	718	F	2,000	3.5	1.84	27	155	21	105.00	143	0.2	1.9	170	5.4	66
19-May-21	27-Jul-21	729	F	2,000	3.5	1.40	20	84	15	150.00	201	0.1	2.5	197	6.0	47
19-May-21	27-Jul-21	730	F	2,000	3.7	1.85	20	132	20	100.00	142	0.2	2.0	207	5.7	77
21-May-21	28-Jul-21	509	M	0	3.1	0.89	112	236	30	150.00	227	0.2	3.5	158	6.6	160

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21-May-21	28-Jul-21	510	M	0	3.4	1.42	51	247	21	NA	170	0.1	2.4	193	5.8	148
20-May-21	28-Jul-21	529	M	0	3.4	1.42	29	105	20	66.67	209	0.3	2.4	181	5.8	97
20-May-21	28-Jul-21	530	M	0	3.2	1.28	41	177	30	300.00	158	0.1	2.5	157	5.7	190
17-May-21	27-Jul-21	539	M	0	3.6	1.38	56	123	40	200.00	223	0.2	2.6	163	6.2	211
17-May-21	27-Jul-21	540	M	0	3.1	1.15	93	311	43	215.00	139	0.2	2.7	192	5.8	216
18-May-21	27-Jul-21	583	M	0	3.4	1.48	42	229	24	120.00	187	0.2	2.3	238	5.7	116
18-May-21	27-Jul-21	584	M	0	3.4	1.36	43	170	23	115.00	198	0.2	2.5	231	5.9	174
19-May-21	27-Jul-21	601	M	0	3.0	1.20	30	118	31	310.00	203	0.1	2.5	166	5.5	125
19-May-21	27-Jul-21	602	M	0	3.4	1.48	47	149	24	NA	208	0.1	2.3	216	5.7	235
20-May-21	27-Jul-21	515	M	125	3.6	1.57	97	140	27	135.00	233	0.2	2.3	208	5.9	143
20-May-21	27-Jul-21	516	M	125	3.3	1.50	28	88	22	220.00	201	0.1	2.2	181	5.5	70
18-May-21	27-Jul-21	535	M	125	3.5	1.35	52	294	25	250.00	230	0.1	2.6	168	6.1	140
18-May-21	27-Jul-21	536	M	125	3.4	1.36	31	234	43	430.00	203	0.1	2.5	178	5.9	128
19-May-21	27-Jul-21	547	M	125	3.8	1.58	36	146	20	100.00	220	0.2	2.4	184	6.2	72
19-May-21	27-Jul-21	548	M	125	3.6	1.33	39	207	24	120.00	215	0.2	2.7	174	6.3	191
21-May-21	28-Jul-21	567	M	125	3.5	1.30	83	240	30	150.00	172	0.2	2.7	181	6.2	110
21-May-21	28-Jul-21	568	M	125	3.3	1.14	42	181	26	130.00	221	0.2	2.9	138	6.2	91
17-May-21	27-Jul-21	607	M	125	3.5	1.30	53	341	22	110.00	237	0.2	2.7	182	6.2	87
17-May-21	27-Jul-21	608	M	125	2.9	0.94	52	379	37	370.00	241	0.1	3.1	170	6.0	354
20-May-21	27-Jul-21	513	M	250	3.6	1.44	32	106	22	110.00	233	0.2	2.5	222	6.1	92
20-May-21	27-Jul-21	514	M	250	3.3	1.14	27	145	27	135.00	173	0.2	2.9	127	6.2	207

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19-May-21	27-Jul-21	557	M	250	3.5	1.35	39	180	23	NA	215	0.1	2.6	205	6.1	147
19-May-21	27-Jul-21	558	M	250	3.3	1.27	35	129	26	NA	242	0.1	2.6	186	5.9	192
18-May-21	27-Jul-21	559	M	250	3.5	1.46	31	173	21	210.00	227	0.1	2.4	179	5.9	120
18-May-21	27-Jul-21	560	M	250	3.7	1.19	52	178	25	250.00	354	0.1	3.1	220	6.8	214
21-May-21	28-Jul-21	563	M	250	3.4	1.31	33	185	31	NA	237	0.1	2.6	142	6.0	126
21-May-21	28-Jul-21	564	M	250	3.5	1.13	40	384	29	NA	172	0.1	3.1	147	6.6	103
17-May-21	27-Jul-21	615	M	250	2.9	1.07	21	271	21	52.50	140	0.4	2.7	151	5.6	73
17-May-21	27-Jul-21	616	M	250	3.5	1.59	34	174	20	100.00	230	0.2	2.2	197	5.7	100

Table F-12. Buckeye Clinical Chemistry Data

Nec. date	Run date	ID	Sex	Dose (mg/L)	ALB (g/dL)	ALB / GLOB ratio (g/dL)	ALT (U/L)	AST (U/L)	BUN (mg/dL)	BUN / CREA ratio	CHOL (mg/dL)	CREA (mg/dL)	GLOB calc. (g/dL)	GLU (mg/dL)	TP (g/dL)	TRIG (g/dL)
23-Sep-21	15-Oct-21	1447	F	0	3.8	1.81	43	194	25	NA	122	0.1	2.1	150	5.9	84
23-Sep-21	15-Oct-21	1448	F	0	4.0	1.90	47	190	27	270.00	155	0.1	2.1	127	6.1	66
20-Sep-21	14-Oct-21	1455	F	0	3.6	2.40	30	147	20	100.00	82	0.2	1.5	193	5.1	81
20-Sep-21	14-Oct-21	1456	F	0	3.8	1.90	33	222	18	NA	148	0.1	2.0	136	5.8	81
21-Sep-21	15-Oct-21	1487	F	0	3.6	2.00	30	121	33	82.50	157	0.4	1.8	178	5.4	87
21-Sep-21	15-Oct-21	1488	F	0	3.8	1.90	28	121	16	NA	160	0.1	2.0	207	5.8	102
22-Sep-21	15-Oct-21	1491	F	0	4.0	2.11	25	99	20	100.00	115	0.2	1.9	199	5.9	52
22-Sep-21	15-Oct-21	1492	F	0	3.4	1.31	213	288	16	80.00	149	0.2	2.6	132	6.0	68
24-Sep-21	15-Oct-21	1495	F	0	3.4	1.62	32	119	15	75.00	124	0.2	2.1	157	5.5	86
24-Sep-21	15-Oct-21	1496	F	0	3.4	1.62	25	134	17	NA	150	0.1	2.1	186	5.5	75
24-Sep-21	15-Oct-21	1445	F	125	3.4	2.00	27	146	24	120.00	125	0.2	1.7	167	5.1	31
24-Sep-21	15-Oct-21	1446	F	125	3.5	1.59	24	119	20	200.00	185	0.1	2.2	156	5.7	88
21-Sep-21	15-Oct-21	1469	F	125	3.6	2.12	33	103	21	210.00	130	0.1	1.7	162	5.3	65
21-Sep-21	15-Oct-21	1470	F	125	3.6	1.29	28	119	17	170.00	177	0.1	2.8	156	6.4	72
22-Sep-21	15-Oct-21	1471	F	125	3.8	1.81	35	176	21	70.00	145	0.3	2.1	134	5.9	83
22-Sep-21	15-Oct-21	1472	F	125	3.7	1.95	29	143	25	125.00	146	0.2	1.9	203	5.6	59
23-Sep-21	15-Oct-21	1477	F	125	3.3	1.32	31	164	15	75.00	179	0.2	2.5	158	5.8	68
23-Sep-21	15-Oct-21	1478	F	125	3.5	1.67	31	152	17	170.00	130	0.1	2.1	143	5.6	85

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20-Sep-21	14-Oct-21	1493	F	125	3.8	1.90	60	186	21	105.00	116	0.2	2.0	158	5.8	82
20-Sep-21	14-Oct-21	1494	F	125	3.7	1.61	59	195	20	100.00	154	0.2	2.3	161	6.0	112
22-Sep-21	15-Oct-21	1451	F	250	3.9	1.86	28	168	21	105.00	151	0.2	2.1	149	6.0	194
22-Sep-21	15-Oct-21	1452	F	250	3.8	2.00	27	140	19	190.00	82	0.1	1.9	115	5.7	46
20-Sep-21	14-Oct-21	1457	F	250	3.6	1.89	25	116	38	76.00	140	0.5	1.9	126	5.5	67
20-Sep-21	14-Oct-21	1458	F	250	3.5	1.52	31	190	13	65.00	197	0.2	2.3	155	5.8	78
23-Sep-21	15-Oct-21	1483	F	250	3.8	1.90	47	140	20	NA	116	0.1	2.0	151	5.8	68
23-Sep-21	15-Oct-21	1484	F	250	3.7	1.68	40	152	20	200.00	114	0.1	2.2	171	5.9	70
21-Sep-21	15-Oct-21	1497	F	250	3.4	1.48	30	113	20	100.00	112	0.2	2.3	166	5.7	63
21-Sep-21	15-Oct-21	1498	F	250	3.7	1.76	29	176	22	220.00	143	0.1	2.1	152	5.8	58
24-Sep-21	15-Oct-21	1499	F	250	3.6	1.71	30	114	14	70.00	96	0.2	2.1	129	5.7	92
24-Sep-21	15-Oct-21	1500	F	250	3.8	1.90	43	228	17	85.00	75	0.2	2.0	146	5.8	69
21-Sep-21	15-Oct-21	1441	F	500	3.2	1.45	26	126	17	85.00	80	0.2	2.2	146	5.4	48
21-Sep-21	15-Oct-21	1442	F	500	3.3	1.50	27	177	18	NA	123	0.1	2.2	145	5.5	75
22-Sep-21	15-Oct-21	1449	F	500	3.4	1.89	30	124	18	NA	102	0.1	1.8	148	5.2	115
22-Sep-21	15-Oct-21	1450	F	500	3.6	1.80	27	128	18	90.00	138	0.2	2.0	168	5.6	101
23-Sep-21	15-Oct-21	1461	F	500	3.8	1.81	32	151	18	90.00	98	0.2	2.1	167	5.9	85
23-Sep-21	15-Oct-21	1462	F	500	3.7	1.95	26	138	19	190.00	110	0.1	1.9	139	5.6	55
24-Sep-21	15-Oct-21	1481	F	500	3.5	1.75	35	137	22	NA	186	0.1	2.0	162	5.5	44
24-Sep-21	15-Oct-21	1482	F	500	3.7	1.54	29	146	25	125.00	152	0.2	2.4	110	6.1	138
20-Sep-21	14-Oct-21	1485	F	500	3.5	1.67	33	131	21	105.00	100	0.2	2.1	177	5.6	74

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20-Sep-21	14-Oct-21	1486	F	500	3.1	1.29	38	209	19	190.00	98	0.1	2.4	217	5.5	59
20-Sep-21	14-Oct-21	1443	F	1,000	3.8	2.37	25	131	20	100.00	146	0.2	1.6	124	5.4	133
20-Sep-21	14-Oct-21	1444	F	1,000	3.5	1.52	39	138	25	NA	140	0.1	2.3	137	5.8	146
24-Sep-21	15-Oct-21	1459	F	1,000	3.4	1.62	24	117	18	90.00	143	0.2	2.1	168	5.5	40
24-Sep-21	15-Oct-21	1460	F	1,000	3.7	1.68	28	237	24	120.00	90	0.2	2.2	145	5.9	43
22-Sep-21	15-Oct-21	1465	F	1,000	3.7	1.95	29	162	26	130.00	156	0.2	1.9	176	5.6	171
22-Sep-21	15-Oct-21	1466	F	1,000	3.9	1.77	23	152	20	100.00	134	0.2	2.2	153	6.1	112
21-Sep-21	15-Oct-21	1467	F	1,000	3.4	1.79	27	119	21	210.00	151	0.1	1.9	113	5.3	114
21-Sep-21	15-Oct-21	1468	F	1,000	3.6	1.57	37	142	16	160.00	169	0.1	2.3	126	5.9	51
23-Sep-21	15-Oct-21	1489	F	1,000	3.8	1.65	26	127	20	200.00	118	0.1	2.3	120	6.1	49
23-Sep-21	15-Oct-21	1490	F	1,000	3.7	1.76	44	190	28	NA	107	0.1	2.1	166	5.8	67
23-Sep-21	15-Oct-21	1453	F	2,000	3.7	1.54	30	183	22	110.00	122	0.2	2.4	141	6.1	110
23-Sep-21	15-Oct-21	1454	F	2,000	3.0	1.76	35	141	21	105.00	43	0.2	1.7	254	4.7	27
20-Sep-21	14-Oct-21	1463	F	2,000	3.4	1.79	31	107	17	85.00	104	0.2	1.9	162	5.3	78
20-Sep-21	14-Oct-21	1464	F	2,000	3.6	2.00	27	170	19	95.00	130	0.2	1.8	151	5.4	146
21-Sep-21	15-Oct-21	1473	F	2,000	3.8	1.73	35	130	17	NA	131	0.1	2.2	132	6.0	76
24-Sep-21	15-Oct-21	1475	F	2,000	3.5	1.46	27	159	21	210.00	146	0.1	2.4	116	5.9	50
24-Sep-21	15-Oct-21	1476	F	2,000	3.4	1.55	38	164	20	100.00	114	0.2	2.2	130	5.6	59
22-Sep-21	15-Oct-21	1479	F	2,000	3.8	1.65	31	153	23	230.00	194	0.1	2.3	174	6.1	128
22-Sep-21	15-Oct-21	1480	F	2,000	3.3	1.94	25	131	21	105.00	109	0.2	1.7	168	5.0	78
21-Sep-21	15-Oct-21	1774	F	2,000	3.5	1.67	32	201	16	160.00	86	0.1	2.1	203	5.6	48

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21-Sep-21	14-Oct-21	1385	M	0	3.3	1.50	31	106	27	135.00	198	0.2	2.2	175	5.5	115
21-Sep-21	14-Oct-21	1386	M	0	3.3	1.32	42	158	20	200.00	171	0.1	2.5	191	5.8	62
24-Sep-21	15-Oct-21	1387	M	0	3.4	1.42	29	75	29	96.67	274	0.3	2.4	154	5.8	152
24-Sep-21	15-Oct-21	1388	M	0	3.3	1.37	22	95	27	135.00	134	0.2	2.4	134	5.7	72
22-Sep-21	15-Oct-21	1391	M	0	3.4	1.36	30	116	28	140.00	214	0.2	2.5	147	5.9	139
22-Sep-21	15-Oct-21	1392	M	0	3.2	1.45	37	125	27	270.00	229	0.1	2.2	242	5.4	182
20-Sep-21	14-Oct-21	1417	M	0	3.1	1.48	23	100	26	86.67	210	0.3	2.1	200	5.2	135
20-Sep-21	14-Oct-21	1418	M	0	3.5	1.30	39	119	24	80.00	234	0.3	2.7	167	6.2	75
23-Sep-21	15-Oct-21	1419	M	0	3.2	1.52	41	95	16	80.00	199	0.2	2.1	189	5.3	80
23-Sep-21	15-Oct-21	1420	M	0	3.2	1.39	33	156	34	340.00	187	0.1	2.3	116	5.5	125
21-Sep-21	14-Oct-21	1383	M	125	3.4	1.42	25	75	23	230.00	220	0.1	2.4	159	5.8	102
21-Sep-21	14-Oct-21	1384	M	125	2.9	1.21	22	84	34	340.00	164	0.1	2.4	195	5.3	128
24-Sep-21	15-Oct-21	1397	M	125	3.7	1.48	39	121	34	170.00	209	0.2	2.5	184	6.2	202
24-Sep-21	15-Oct-21	1398	M	125	3.4	1.48	43	121	32	320.00	156	0.1	2.3	174	5.7	56
23-Sep-21	15-Oct-21	1399	M	125	3.1	1.48	42	118	19	95.00	202	0.2	2.1	184	5.2	181
23-Sep-21	15-Oct-21	1400	M	125	3.5	1.52	35	104	27	135.00	230	0.2	2.3	203	5.8	77
20-Sep-21	14-Oct-21	1425	M	125	3.5	1.46	37	113	20	100.00	232	0.2	2.4	196	5.9	58
20-Sep-21	14-Oct-21	1426	M	125	3.2	1.45	27	119	22	110.00	191	0.2	2.2	188	5.4	98
22-Sep-21	15-Oct-21	1433	M	125	3.1	1.41	27	117	21	105.00	137	0.2	2.2	155	5.3	98
22-Sep-21	15-Oct-21	1434	M	125	3.0	1.36	36	162	40	400.00	179	0.1	2.2	147	5.2	62
20-Sep-21	14-Oct-21	1375	M	250	3.1	1.72	21	99	38	190.00	153	0.2	1.8	185	4.9	103

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20-Sep-21	14-Oct-21	1376	M	250	2.7	1.23	41	161	111	92.50	223	1.2	2.2	159	4.9	78
21-Sep-21	14-Oct-21	1377	M	250	3.5	1.59	37	128	25	NA	223	0.1	2.2	199	5.7	81
21-Sep-21	14-Oct-21	1378	M	250	3.5	1.46	34	107	23	230.00	217	0.1	2.4	150	5.9	88
22-Sep-21	15-Oct-21	1401	M	250	3.1	1.55	33	167	26	260.00	153	0.1	2.0	235	5.1	92
22-Sep-21	15-Oct-21	1402	M	250	3.2	1.33	40	150	18	180.00	228	0.1	2.4	229	5.6	79
23-Sep-21	15-Oct-21	1411	M	250	3.1	1.19	68	133	25	250.00	248	0.1	2.6	201	5.7	108
23-Sep-21	15-Oct-21	1412	M	250	3.3	1.27	30	110	33	165.00	176	0.2	2.6	174	5.9	60
24-Sep-21	15-Oct-21	1439	M	250	3.2	1.23	30	84	24	80.00	223	0.3	2.6	173	5.8	84
24-Sep-21	15-Oct-21	1440	M	250	3.4	1.42	28	94	25	NA	195	0.1	2.4	135	5.8	75

Table F-13. ECOPOL A Clinical Chemistry Data

Nec. date	Run date	ID	Sex	Dose (mg/L)	ALB (g/dL)	ALB / GLOB ratio (g/dL)	ALT (U/L)	AST (U/L)	BUN (mg/dL)	BUN / CREA ratio	CHOL (mg/dL)	CREA (mg/dL)	GLOB calc. (g/dL)	GLU (mg/dL)	TP (g/dL)	TRIG (g/dL)
30-Jun-21	17-Aug-21	1007	F	0	3.5	1.46	36	187	16	160.00	135	0.1	2.4	112	5.9	68
30-Jun-21	17-Aug-21	1008	F	0	3.8	1.52	28	138	16	80.00	154	0.2	2.5	151	6.3	132
29-Jun-21	16-Aug-21	1031	F	0	3.5	1.40	38	186	22	110.00	98	0.2	2.5	150	6.0	180
29-Jun-21	16-Aug-21	1032	F	0	3.6	1.71	21	127	16	160.00	177	0.1	2.1	186	5.7	100
28-Jun-21	16-Aug-21	1059	F	0	3.8	1.58	21	193	18	90.00	165	0.2	2.4	183	6.2	63
28-Jun-21	16-Aug-21	1060	F	0	3.4	1.26	26	162	16	NA	143	0.1	2.7	161	6.1	55
1-Jul-21	17-Aug-21	1077	F	0	3.2	1.23	31	99	22	73.33	229	0.3	2.6	148	5.8	136
1-Jul-21	17-Aug-21	1078	F	0	3.6	1.33	28	168	16	53.33	200	0.3	2.7	125	6.3	165
2-Jul-21	17-Aug-21	1119	F	0	3.8	1.58	44	325	22	220.00	105	0.1	2.4	153	6.2	156
2-Jul-21	17-Aug-21	1120	F	0	3.8	1.65	28	216	17	85.00	148	0.2	2.3	177	6.1	76
30-Jun-21	17-Aug-21	1011	F	125	3.6	1.44	23	117	14	70.00	156	0.2	2.5	152	6.1	122
30-Jun-21	17-Aug-21	1012	F	125	3.3	1.43	30	114	19	95.00	93	0.2	2.3	171	5.6	60
29-Jun-21	16-Aug-21	1013	F	125	3.8	1.36	31	246	20	100.00	156	0.2	2.8	138	6.6	132
29-Jun-21	16-Aug-21	1014	F	125	3.6	1.57	34	220	19	63.33	147	0.3	2.3	178	5.9	120
28-Jun-21	16-Aug-21	1019	F	125	3.7	1.37	50	361	42	84.00	180	0.5	2.7	161	6.4	122
28-Jun-21	16-Aug-21	1020	F	125	3.5	1.52	35	161	15	75.00	156	0.2	2.3	174	5.8	86
1-Jul-21	17-Aug-21	1079	F	125	3.7	1.54	29	154	15	75.00	188	0.2	2.4	155	6.1	76
1-Jul-21	17-Aug-21	1080	F	125	3.4	1.48	30	174	17	NA	167	0.1	2.3	165	5.7	84
2-Jul-21	17-Aug-21	1107	F	125	3.8	1.65	43	295	19	95.00	137	0.2	2.3	178	6.1	119
2-Jul-21	17-Aug-21	1108	F	125	3.7	1.42	44	181	17	170.00	159	0.1	2.6	171	6.3	88

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30-Jun-21	17-Aug-21	1015	F	250	3.6	1.57	23	126	13	65.00	130	0.2	2.3	135	5.9	55
30-Jun-21	17-Aug-21	1016	F	250	3.8	1.52	28	132	16	80.00	184	0.2	2.5	139	6.3	112
28-Jun-21	16-Aug-21	1023	F	250	3.1	1.41	22	158	18	90.00	152	0.2	2.2	160	5.3	64
28-Jun-21	16-Aug-21	1024	F	250	3.3	1.43	22	176	17	170.00	149	0.1	2.3	164	5.6	129
29-Jun-21	16-Aug-21	1030	F	250	3.2	1.19	43	198	19	63.33	146	0.3	2.7	121	5.9	73
2-Jul-21	17-Aug-21	1071	F	250	3.8	1.52	33	246	17	85.00	170	0.2	2.5	165	6.3	113
2-Jul-21	17-Aug-21	1072	F	250	3.8	1.73	56	391	23	115.00	124	0.2	2.2	187	6.0	119
1-Jul-21	17-Aug-21	1081	F	250	3.6	1.33	30	175	17	85.00	162	0.2	2.7	176	6.3	178
1-Jul-21	17-Aug-21	1082	F	250	3.2	1.39	25	134	17	NA	132	0.1	2.3	193	5.5	166
30-Jun-21	17-Aug-21	1009	F	500	3.7	1.48	32	96	18	90.00	262	0.2	2.5	168	6.2	116
30-Jun-21	17-Aug-21	1010	F	500	3.2	1.10	31	128	18	NA	151	0.1	2.9	147	6.1	70
1-Jul-21	17-Aug-21	1049	F	500	3.6	1.44	33	219	21	105.00	148	0.2	2.5	156	6.1	123
1-Jul-21	17-Aug-21	1050	F	500	3.7	1.54	36	167	17	170.00	141	0.1	2.4	169	6.1	147
28-Jun-21	16-Aug-21	1089	F	500	3.3	1.27	20	99	16	NA	140	0.1	2.6	171	5.9	176
28-Jun-21	16-Aug-21	1090	F	500	3.6	1.57	17	123	22	110.00	154	0.2	2.3	202	5.9	112
29-Jun-21	16-Aug-21	1105	F	500	3.9	1.44	31	115	17	170.00	143	0.1	2.7	201	6.6	72
29-Jun-21	16-Aug-21	1106	F	500	3.8	1.65	25	114	20	200.00	160	0.1	2.3	196	6.1	87
2-Jul-21	17-Aug-21	1113	F	500	3.5	1.35	28	281	17	85.00	101	0.2	2.6	147	6.1	96
2-Jul-21	17-Aug-21	1114	F	500	3.9	1.30	33	176	17	56.67	117	0.3	3.0	196	6.9	153
28-Jun-21	16-Aug-21	1021	F	1,000	3.8	1.58	31	183	14	70.00	137	0.2	2.4	124	6.2	66
28-Jun-21	16-Aug-21	1022	F	1,000	3.6	1.50	44	264	19	38.00	169	0.5	2.4	134	6.0	94
2-Jul-21	17-Aug-21	1051	F	1,000	3.5	1.67	47	349	20	100.00	99	0.2	2.1	138	5.6	127
2-Jul-21	17-Aug-21	1052	F	1,000	3.7	1.48	37	227	15	75.00	165	0.2	2.5	161	6.2	109
30-Jun-21	17-Aug-21	1063	F	1,000	3.5	1.46	32	127	18	90.00	144	0.2	2.4	197	5.9	88

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30-Jun-21	17-Aug-21	1064	F	1,000	3.7	1.42	30	112	22	110.00	146	0.2	2.6	139	6.3	44
1-Jul-21	17-Aug-21	1065	F	1,000	3.5	1.35	29	142	17	56.67	205	0.3	2.6	139	6.1	92
1-Jul-21	17-Aug-21	1066	F	1,000	3.5	1.40	28	173	15	50.00	148	0.3	2.5	173	6.0	84
29-Jun-21	16-Aug-21	1093	F	1,000	3.6	1.71	27	120	16	53.33	97	0.3	2.1	184	5.7	120
29-Jun-21	16-Aug-21	1094	F	1,000	3.4	1.26	34	126	18	60.00	137	0.3	2.7	148	6.1	97
1-Jul-21	17-Aug-21	1047	F	2,000	3.3	1.14	51	312	24	NA	189	0.1	2.9	136	6.2	176
1-Jul-21	17-Aug-21	1048	F	2,000	4.1	1.52	48	440	16	NA	130	0.1	2.7	157	6.8	138
28-Jun-21	16-Aug-21	1053	F	2,000	3.1	1.19	30	178	15	NA	122	0.1	2.6	209	5.7	144
28-Jun-21	16-Aug-21	1054	F	2,000	3.1	1.29	22	124	16	80.00	251	0.2	2.4	159	5.5	85
30-Jun-21	17-Aug-21	1057	F	2,000	3.2	1.33	27	186	16	80.00	110	0.2	2.4	138	5.6	63
30-Jun-21	17-Aug-21	1058	F	2,000	3.7	1.61	22	103	17	56.67	192	0.3	2.3	188	6.0	84
2-Jul-21	17-Aug-21	1099	F	2,000	3.6	1.50	42	248	20	100.00	97	0.2	2.4	182	6.0	53
2-Jul-21	17-Aug-21	1100	F	2,000	3.9	1.50	34	293	16	160.00	149	0.1	2.6	165	6.5	92
29-Jun-21	16-Aug-21	1103	F	2,000	3.6	1.38	20	134	16	53.33	143	0.3	2.6	151	6.2	110
29-Jun-21	16-Aug-21	1104	F	2,000	4.1	1.52	42	171	18	90.00	200	0.2	2.7	126	6.8	100
2-Jul-21	17-Aug-21	807	M	0	3.1	1.11	50	164	26	130.00	204	0.2	2.8	181	5.9	103
2-Jul-21	17-Aug-21	808	M	0	3.5	1.21	51	328	32	NA	174	0.1	2.9	215	6.4	108
29-Jun-21	16-Aug-21	815	M	0	3.4	1.10	39	150	28	140.00	210	0.2	3.1	200	6.5	146
29-Jun-21	16-Aug-21	816	M	0	3.5	1.46	49	208	24	120.00	208	0.2	2.4	152	5.9	124
28-Jun-21	16-Aug-21	821	M	0	3.7	2.06	54	241	25	NA	175	0.1	1.8	203	5.5	109
28-Jun-21	16-Aug-21	822	M	0	3.8	1.36	53	291	25	250.00	196	0.1	2.8	184	6.6	87
30-Jun-21	16-Aug-21	825	M	0	3.3	1.22	46	184	29	NA	181	0.1	2.7	237	6.0	105
30-Jun-21	16-Aug-21	826	M	0	3.3	1.22	43	232	33	165.00	186	0.2	2.7	116	6.0	66
1-Jul-21	17-Aug-21	873	M	0	3.0	1.00	55	209	28	NA	183	0.1	3.0	216	6.0	105

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1-Jul-21	17-Aug-21	874	M	0	3.5	1.25	47	258	23	NA	246	0.1	2.8	176	6.3	129
30-Jun-21	16-Aug-21	779	M	125	3.6	1.38	49	149	30	100.00	176	0.3	2.6	167	6.2	97
30-Jun-21	16-Aug-21	780	M	125	3.6	1.24	73	206	24	120.00	145	0.2	2.9	230	6.5	121
1-Jul-21	17-Aug-21	806	M	125	3.5	1.25	37	161	25	NA	219	0.1	2.8	180	6.3	209
28-Jun-21	16-Aug-21	837	M	125	3.7	1.23	59	312	29	96.67	187	0.3	3.0	186	6.7	101
28-Jun-21	16-Aug-21	838	M	125	3.7	1.12	70	474	32	NA	207	0.1	3.3	170	7.0	115
2-Jul-21	17-Aug-21	855	M	125	3.4	1.10	60	159	28	140.00	220	0.2	3.1	195	6.5	122
2-Jul-21	17-Aug-21	856	M	125	3.1	1.15	34	188	29	145.00	157	0.2	2.7	176	5.8	95
29-Jun-21	16-Aug-21	879	M	125	3.4	1.36	47	174	28	NA	236	0.1	2.5	192	5.9	121
29-Jun-21	16-Aug-21	880	M	125	3.2	1.14	48	170	32	160.00	189	0.2	2.8	215	6.0	227
28-Jun-21	16-Aug-21	771	M	250	3.5	1.84	90	470	33	165.00	201	0.2	1.9	181	5.4	93
28-Jun-21	16-Aug-21	772	M	250	3.3	1.74	62	207	33	165.00	210	0.2	1.9	152	5.2	149
30-Jun-21	16-Aug-21	775	M	250	3.4	1.17	49	191	26	130.00	215	0.2	2.9	172	6.3	167
30-Jun-21	16-Aug-21	776	M	250	3.3	1.06	55	200	33	330.00	259	0.1	3.1	144	6.4	164
2-Jul-21	17-Aug-21	784	M	250	3.3	1.22	33	200	36	NA	178	0.1	2.7	168	6.0	117
29-Jun-21	16-Aug-21	851	M	250	3.3	1.27	44	158	30	NA	252	0.1	2.6	185	5.9	80
29-Jun-21	16-Aug-21	852	M	250	3.4	1.26	45	147	29	290.00	224	0.1	2.7	235	6.1	68
1-Jul-21	17-Aug-21	875	M	250	3.5	1.17	48	194	25	250.00	272	0.1	3.0	175	6.5	104
1-Jul-21	17-Aug-21	876	M	250	3.3	1.14	48	224	34	340.00	175	0.1	2.9	190	6.2	218

Table F-14. ENVIRO USP Clinical Chemistry Data

Nec. date	Run date	ID	Sex	Dose (mg/L)	ALB (g/dL)	ALB / GLOB ratio (g/dL)	ALT (U/L)	AST (U/L)	BUN (mg/dL)	BUN / CREA ratio	CHOL (mg/dL)	CREA (mg/dL)	GLOB calc. (g/dL)	GLU (mg/dL)	TP (g/dL)	TRIG (g/dL)
14-Jul-21	24-Aug-21	1157	F	0	3.4	1.70	22	115	23	230.00	97	0.1	2.0	156	5.4	106
14-Jul-21	24-Aug-21	1158	F	0	3.7	1.76	29	127	30	NA	180	0.1	2.1	171	5.8	146
12-Jul-21	23-Aug-21	1181	F	0	3.8	1.81	21	115	20	66.67	133	0.3	2.1	171	5.9	80
12-Jul-21	23-Aug-21	1182	F	0	3.7	1.68	40	172	24	120.00	151	0.2	2.2	183	5.9	102
15-Jul-21	24-Aug-21	1185	F	0	3.6	1.71	19	167	24	NA	112	0.1	2.1	144	5.7	92
15-Jul-21	24-Aug-21	1186	F	0	3.4	1.55	19	172	19	190.00	164	0.1	2.2	140	5.6	77
16-Jul-21	24-Aug-21	1189	F	0	3.3	1.27	32	152	20	200.00	115	0.1	2.6	176	5.9	76
16-Jul-21	24-Aug-21	1190	F	0	3.6	1.71	68	251	19	95.00	140	0.2	2.1	165	5.7	122
13-Jul-21	23-Aug-21	1195	F	0	3.5	1.52	21	120	18	180.00	109	0.1	2.3	149	5.8	105
13-Jul-21	23-Aug-21	1196	F	0	3.7	1.61	27	167	14	140.00	194	0.1	2.3	131	6.0	122
13-Jul-21	23-Aug-21	1137	F	125	3.6	1.57	26	175	24	240.00	92	0.1	2.3	155	5.9	65
13-Jul-21	23-Aug-21	1138	F	125	3.4	1.55	28	173	17	NA	129	0.1	2.2	134	5.6	75
15-Jul-21	24-Aug-21	1145	F	125	3.7	1.54	23	159	17	170.00	149	0.1	2.4	147	6.1	62
15-Jul-21	24-Aug-21	1146	F	125	3.6	1.71	23	167	87	174.00	138	0.5	2.1	160	5.7	117
16-Jul-21	24-Aug-21	1187	F	125	3.6	1.44	28	156	14	70.00	209	0.2	2.5	134	6.1	124
12-Jul-21	23-Aug-21	1221	F	125	3.6	1.57	42	170	13	65.00	130	0.2	2.3	137	5.9	46
12-Jul-21	23-Aug-21	1222	F	125	3.5	1.75	30	132	19	95.00	143	0.2	2.0	186	5.5	57
14-Jul-21	24-Aug-21	1231	F	125	3.3	1.57	82	187	16	80.00	131	0.2	2.1	177	5.4	69

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14-Jul-21	24-Aug-21	1232	F	125	3.3	1.50	22	143	20	200.00	122	0.1	2.2	177	5.5	45
13-Jul-21	23-Aug-21	1159	F	250	3.0	1.30	35	213	27	135.00	145	0.2	2.3	176	5.3	131
13-Jul-21	23-Aug-21	1160	F	250	3.5	1.25	19	119	17	85.00	141	0.2	2.8	195	6.3	91
14-Jul-21	24-Aug-21	1165	F	250	3.6	1.80	41	174	16	NA	89	0.1	2.0	172	5.6	98
14-Jul-21	24-Aug-21	1166	F	250	3.7	1.68	31	174	21	210.00	156	0.1	2.2	143	5.9	156
15-Jul-21	24-Aug-21	1179	F	250	3.4	2.00	15	164	130	56.52	99	2.3	1.7	124	5.1	73
15-Jul-21	24-Aug-21	1180	F	250	3.6	1.71	30	126	18	90.00	77	0.2	2.1	166	5.7	124
12-Jul-21	23-Aug-21	1183	F	250	3.4	1.70	22	139	13	130.00	121	0.1	2.0	123	5.4	60
12-Jul-21	23-Aug-21	1184	F	250	3.4	1.36	34	133	17	56.67	145	0.3	2.5	138	5.9	49
16-Jul-21	24-Aug-21	1237	F	250	3.5	1.46	26	109	18	180.00	143	0.1	2.4	172	5.9	82
16-Jul-21	24-Aug-21	1238	F	250	3.4	1.89	24	169	29	72.50	105	0.4	1.8	167	5.2	43
12-Jul-21	23-Aug-21	1135	F	500	3.4	1.48	33	150	37	61.67	121	0.6	2.3	162	5.7	120
12-Jul-21	23-Aug-21	1136	F	500	3.5	1.46	41	170	20	66.67	134	0.3	2.4	144	5.9	119
15-Jul-21	24-Aug-21	1175	F	500	3.5	1.52	30	131	23	115.00	110	0.2	2.3	179	5.8	109
15-Jul-21	24-Aug-21	1176	F	500	3.3	1.83	24	138	20	100.00	134	0.2	1.8	181	5.1	103
14-Jul-21	24-Aug-21	1177	F	500	3.5	1.84	29	186	18	90.00	138	0.2	1.9	175	5.4	82
14-Jul-21	24-Aug-21	1178	F	500	3.7	1.76	26	165	21	210.00	161	0.1	2.1	164	5.8	66
13-Jul-21	23-Aug-21	1215	F	500	3.7	1.54	22	116	17	85.00	152	0.2	2.4	168	6.1	60
13-Jul-21	23-Aug-21	1216	F	500	3.6	1.38	30	182	26	NA	93	0.1	2.6	175	6.2	57
16-Jul-21	24-Aug-21	1219	F	500	3.6	1.44	47	137	16	80.00	138	0.2	2.5	164	6.1	60
16-Jul-21	24-Aug-21	1220	F	500	3.4	1.79	22	123	22	110.00	124	0.2	1.9	173	5.3	178

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14-Jul-21	24-Aug-21	1133	F	1,000	3.6	1.64	28	93	28	140.00	188	0.2	2.2	147	5.8	83
14-Jul-21	24-Aug-21	1134	F	1,000	3.6	1.50	24	136	27	135.00	179	0.2	2.4	160	6.0	102
12-Jul-21	23-Aug-21	1151	F	1,000	3.6	1.57	28	145	19	95.00	173	0.2	2.3	122	5.9	113
12-Jul-21	23-Aug-21	1152	F	1,000	3.8	1.46	19	195	23	115.00	135	0.2	2.6	129	6.4	68
16-Jul-21	24-Aug-21	1193	F	1,000	4.0	1.90	20	90	24	NA	131	0.1	2.1	137	6.1	62
16-Jul-21	24-Aug-21	1194	F	1,000	3.4	1.55	23	132	41	102.50	164	0.4	2.2	156	5.6	46
13-Jul-21	23-Aug-21	1203	F	1,000	3.5	1.59	27	178	24	NA	155	0.1	2.2	163	5.7	117
13-Jul-21	23-Aug-21	1204	F	1,000	3.7	1.61	20	130	15	150.00	174	0.1	2.3	159	6.0	77
15-Jul-21	24-Aug-21	1235	F	1,000	3.2	1.45	11	170	159	99.37	145	1.6	2.2	144	5.4	90
15-Jul-21	24-Aug-21	1236	F	1,000	3.4	2.13	27	113	23	115.00	84	0.2	1.6	243	5.0	96
13-Jul-21	23-Aug-21	1129	F	2,000	3.4	1.70	23	134	17	85.00	167	0.2	2.0	157	5.4	66
13-Jul-21	23-Aug-21	1130	F	2,000	3.3	1.43	27	156	20	100.00	219	0.2	2.3	165	5.6	53
16-Jul-21	24-Aug-21	1163	F	2,000	3.5	1.75	18	126	65	54.17	92	1.2	2.0	161	5.5	52
15-Jul-21	24-Aug-21	1197	F	2,000	3.3	1.57	23	175	16	80.00	107	0.2	2.1	142	5.4	109
15-Jul-21	24-Aug-21	1198	F	2,000	3.2	1.52	20	103	14	70.00	152	0.2	2.1	203	5.3	75
12-Jul-21	23-Aug-21	1207	F	2,000	3.5	1.75	23	138	14	46.67	98	0.3	2.0	142	5.5	46
12-Jul-21	23-Aug-21	1208	F	2,000	3.7	1.54	30	107	16	53.33	184	0.3	2.4	135	6.1	66
14-Jul-21	24-Aug-21	1209	F	2,000	3.1	1.15	27	162	20	100.00	153	0.2	2.7	169	5.8	104
14-Jul-21	24-Aug-21	1210	F	2,000	3.4	1.48	17	108	17	170.00	156	0.1	2.3	183	5.7	60
12-Jul-21	23-Aug-21	885	M	0	3.2	1.19	27	152	26	130.00	216	0.2	2.7	147	5.9	217
12-Jul-21	23-Aug-21	886	M	0	3.0	1.15	30	174	33	165.00	212	0.2	2.6	235	5.6	100

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16-Jul-21	24-Aug-21	901	M	0	3.7	1.54	36	156	29	NA	146	0.1	2.4	159	6.1	109
16-Jul-21	24-Aug-21	902	M	0	3.2	1.52	24	138	23	NA	159	0.1	2.1	125	5.3	78
14-Jul-21	23-Aug-21	917	M	0	3.2	1.39	35	164	28	140.00	193	0.2	2.3	172	5.5	140
14-Jul-21	23-Aug-21	918	M	0	3.5	1.35	33	153	37	185.00	140	0.2	2.6	174	6.1	58
13-Jul-21	23-Aug-21	955	M	0	3.1	1.29	28	112	21	105.00	210	0.2	2.4	176	5.5	87
13-Jul-21	23-Aug-21	956	M	0	3.3	1.03	36	143	23	76.67	249	0.3	3.2	148	6.5	107
15-Jul-21	24-Aug-21	965	M	0	3.4	1.55	38	166	22	NA	247	0.1	2.2	128	5.6	163
15-Jul-21	24-Aug-21	966	M	0	3.5	1.25	49	280	28	NA	222	0.1	2.8	152	6.3	278
13-Jul-21	23-Aug-21	921	M	125	3.3	1.50	28	98	21	210.00	165	0.1	2.2	163	5.5	64
13-Jul-21	23-Aug-21	922	M	125	3.3	1.32	39	126	24	NA	264	0.1	2.5	183	5.8	224
15-Jul-21	24-Aug-21	929	M	125	3.0	1.36	26	119	28	280.00	168	0.1	2.2	198	5.2	70
15-Jul-21	24-Aug-21	930	M	125	3.4	1.48	50	158	28	NA	201	0.1	2.3	236	5.7	103
12-Jul-21	23-Aug-21	963	M	125	3.1	1.19	38	91	20	100.00	216	0.2	2.6	236	5.7	136
12-Jul-21	23-Aug-21	964	M	125	3.2	1.23	46	138	22	NA	209	0.1	2.6	168	5.8	161
14-Jul-21	24-Aug-21	983	M	125	3.1	1.29	26	109	27	270.00	255	0.1	2.4	247	5.5	57
14-Jul-21	24-Aug-21	984	M	125	3.5	1.59	38	135	32	320.00	175	0.1	2.2	131	5.7	115
16-Jul-21	24-Aug-21	995	M	125	3.3	1.32	21	105	25	250.00	268	0.1	2.5	186	5.8	80
16-Jul-21	24-Aug-21	996	M	125	3.5	1.40	37	84	25	NA	203	0.1	2.5	203	6.0	129
15-Jul-21	24-Aug-21	883	M	250	3.4	1.31	35	184	28	NA	188	0.1	2.6	162	6.0	229
15-Jul-21	24-Aug-21	884	M	250	3.7	1.54	34	153	28	NA	287	0.1	2.4	225	6.1	184
12-Jul-21	23-Aug-21	919	M	250	3.2	1.33	37	115	23	76.67	186	0.3	2.4	198	5.6	118

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12-Jul-21	23-Aug-21	920	M	250	3.4	1.31	44	121	24	80.00	291	0.3	2.6	173	6.0	161
14-Jul-21	23-Aug-21	937	M	250	3.2	1.19	68	193	28	NA	268	0.1	2.7	182	5.9	191
14-Jul-21	23-Aug-21	938	M	250	3.4	1.36	35	249	28	NA	188	0.1	2.5	173	5.9	122
13-Jul-21	23-Aug-21	941	M	250	3.3	1.27	39	119	28	140.00	170	0.2	2.6	169	5.9	84
13-Jul-21	23-Aug-21	942	M	250	3.3	1.43	38	126	26	260.00	130	0.1	2.3	171	5.6	101
16-Jul-21	24-Aug-21	981	M	250	3.4	1.36	42	109	21	NA	183	0.1	2.5	197	5.9	103
16-Jul-21	24-Aug-21	982	M	250	3.5	1.40	28	104	28	NA	192	0.1	2.5	201	6.0	65

Table F-15. NFD 20-391 Clinical Chemistry Data

Nec. date	Run date	ID	Sex	Dose (mg/L)	ALB (g/dL)	ALB / GLOB ratio (g/dL)	ALT (U/L)	AST (U/L)	BUN (mg/dL)	BUN / CREA ratio	CHOL (mg/dL)	CREA (mg/dL)	GLOB calc. (g/dL)	GLU (mg/dL)	TP (g/dL)	TRIG (g/dL)
19-Jul-21	25-Aug-21	1147	F	0	3.5	1.46	34	228	23	115.00	100	0.2	2.4	130	5.9	90
19-Jul-21	25-Aug-21	1148	F	0	3.5	1.46	29	243	26	260.00	150	0.1	2.4	134	5.9	67
20-Jul-21	25-Aug-21	1169	F	0	3.3	1.74	22	153	45	75.00	111	0.6	1.9	159	5.2	124
20-Jul-21	25-Aug-21	1170	F	0	3.5	1.52	24	138	17	NA	118	0.1	2.3	156	5.8	87
23-Jul-21	26-Aug-21	1227	F	0	3.7	1.76	36	211	19	190.00	121	0.1	2.1	169	5.8	178
23-Jul-21	26-Aug-21	1228	F	0	3.9	1.95	34	216	21	210.00	158	0.1	2.0	134	5.9	100
22-Jul-21	26-Aug-21	1241	F	0	3.4	1.62	27	169	18	NA	112	0.1	2.1	139	5.5	63
22-Jul-21	26-Aug-21	1242	F	0	3.4	1.55	29	144	26	260.00	147	0.1	2.2	136	5.6	60
21-Jul-21	26-Aug-21	1245	F	0	3.4	1.42	33	126	17	85.00	101	0.2	2.4	122	5.8	112
21-Jul-21	26-Aug-21	1246	F	0	3.5	1.67	24	171	15	NA	126	0.1	2.1	156	5.6	90
21-Jul-21	26-Aug-21	1127	F	125	3.3	1.94	28	117	15	NA	97	0.1	1.7	175	5.0	94
21-Jul-21	26-Aug-21	1128	F	125	3.4	2.13	27	132	17	NA	80	0.1	1.6	158	5.0	157
20-Jul-21	25-Aug-21	1131	F	125	3.4	1.70	34	179	20	NA	160	0.1	2.0	166	5.4	91
20-Jul-21	25-Aug-21	1132	F	125	3.4	1.62	39	163	18	NA	157	0.1	2.1	135	5.5	87
19-Jul-21	25-Aug-21	1173	F	125	3.6	1.89	29	186	17	NA	80	0.1	1.9	154	5.5	76
19-Jul-21	25-Aug-21	1174	F	125	3.3	1.18	34	199	15	150.00	209	0.1	2.8	161	6.1	120
23-Jul-21	26-Aug-21	1191	F	125	3.5	1.46	24	101	17	170.00	107	0.1	2.4	118	5.9	56
23-Jul-21	26-Aug-21	1192	F	125	3.7	1.48	26	119	22	220.00	114	0.1	2.5	100	6.2	67

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22-Jul-21	26-Aug-21	1226	F	125	3.4	1.70	28	163	16	160.00	108	0.1	2.0	200	5.4	175
21-Jul-21	26-Aug-21	1155	F	250	3.6	1.71	25	122	16	160.00	116	0.1	2.1	162	5.7	85
21-Jul-21	26-Aug-21	1156	F	250	3.5	1.75	23	117	15	NA	122	0.1	2.0	152	5.5	79
23-Jul-21	26-Aug-21	1167	F	250	3.7	1.61	27	176	21	NA	136	0.1	2.3	146	6.0	119
23-Jul-21	26-Aug-21	1168	F	250	3.9	1.70	31	160	24	240.00	150	0.1	2.3	134	6.2	66
22-Jul-21	26-Aug-21	1205	F	250	3.7	1.76	21	106	18	180.00	117	0.1	2.1	147	5.8	60
22-Jul-21	26-Aug-21	1206	F	250	3.3	1.50	28	157	32	160.00	109	0.2	2.2	122	5.5	118
20-Jul-21	25-Aug-21	1217	F	250	3.5	1.94	21	154	15	NA	69	0.1	1.8	169	5.3	44
20-Jul-21	25-Aug-21	1218	F	250	3.8	1.81	19	118	18	180.00	79	0.1	2.1	120	5.9	55
19-Jul-21	25-Aug-21	1243	F	250	3.8	1.65	34	158	25	NA	93	0.1	2.3	149	6.1	135
19-Jul-21	25-Aug-21	1244	F	250	3.8	1.46	40	261	21	NA	125	0.1	2.6	182	6.4	114
19-Jul-21	25-Aug-21	1139	F	500	3.8	1.65	33	193	16	160.00	123	0.1	2.3	150	6.1	100
19-Jul-21	25-Aug-21	1140	F	500	3.6	1.80	31	271	21	105.00	159	0.2	2.0	171	5.6	100
22-Jul-21	26-Aug-21	1161	F	500	3.5	1.52	27	116	23	NA	146	0.1	2.3	175	5.8	166
22-Jul-21	26-Aug-21	1162	F	500	3.7	2.06	25	90	18	NA	109	0.1	1.8	158	5.5	142
20-Jul-21	25-Aug-21	1201	F	500	3.4	1.62	24	85	17	85.00	192	0.2	2.1	172	5.5	144
20-Jul-21	25-Aug-21	1202	F	500	3.7	1.61	24	126	20	NA	232	0.1	2.3	168	6.0	302
23-Jul-21	26-Aug-21	1229	F	500	3.5	1.59	21	116	24	120.00	170	0.2	2.2	148	5.7	63
23-Jul-21	26-Aug-21	1230	F	500	3.6	1.71	24	144	21	210.00	141	0.1	2.1	174	5.7	87
21-Jul-21	26-Aug-21	1239	F	500	3.4	2.00	25	158	24	120.00	52	0.2	1.7	119	5.1	44
21-Jul-21	26-Aug-21	1240	F	500	3.1	1.19	20	100	18	NA	163	0.1	2.6	168	5.7	62

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23-Jul-21	26-Aug-21	1143	F	1,000	3.4	1.70	44	241	18	90.00	122	0.2	2.0	148	5.4	135
23-Jul-21	26-Aug-21	1144	F	1,000	3.5	1.52	26	171	17	NA	120	0.1	2.3	188	5.8	105
19-Jul-21	25-Aug-21	1149	F	1,000	4.2	1.91	36	198	18	180.00	106	0.1	2.2	131	6.4	75
19-Jul-21	25-Aug-21	1150	F	1,000	3.8	1.58	37	238	22	NA	188	0.1	2.4	125	6.2	124
21-Jul-21	26-Aug-21	1199	F	1,000	3.6	1.57	37	134	24	120.00	199	0.2	2.3	147	5.9	173
21-Jul-21	26-Aug-21	1200	F	1,000	3.7	1.68	18	106	19	95.00	142	0.2	2.2	136	5.9	160
22-Jul-21	26-Aug-21	1224	F	1,000	3.3	1.50	30	150	19	NA	131	0.1	2.2	155	5.5	134
22-Jul-21	26-Aug-21	1225	F	1,000	2.9	1.81	25	190	22	NA	102	0.1	1.6	211	4.5	42
20-Jul-21	25-Aug-21	1233	F	1,000	3.6	1.64	26	144	23	115.00	163	0.2	2.2	166	5.8	85
20-Jul-21	25-Aug-21	1234	F	1,000	3.7	1.61	25	128	20	100.00	134	0.2	2.3	182	6.0	80
21-Jul-21	26-Aug-21	1141	F	2,000	3.6	1.57	31	118	11	NA	151	0.1	2.3	165	5.9	139
21-Jul-21	26-Aug-21	1142	F	2,000	3.8	1.73	29	122	15	150.00	137	0.1	2.2	175	6.0	129
20-Jul-21	25-Aug-21	1153	F	2,000	3.8	1.73	24	133	15	NA	150	0.1	2.2	131	6.0	89
20-Jul-21	25-Aug-21	1154	F	2,000	3.7	2.06	37	210	16	NA	95	0.1	1.8	130	5.5	55
22-Jul-21	26-Aug-21	1171	F	2,000	3.5	1.67	34	168	20	200.00	120	0.1	2.1	155	5.6	102
22-Jul-21	26-Aug-21	1172	F	2,000	3.8	1.81	25	121	17	NA	183	0.1	2.1	164	5.9	112
19-Jul-21	25-Aug-21	1211	F	2,000	3.6	1.71	31	177	28	280.00	160	0.1	2.1	164	5.7	201
19-Jul-21	25-Aug-21	1212	F	2,000	4.0	1.82	51	401	19	190.00	108	0.1	2.2	155	6.2	84
23-Jul-21	26-Aug-21	1213	F	2,000	3.5	1.94	22	118	16	80.00	73	0.2	1.8	145	5.3	81
23-Jul-21	26-Aug-21	1214	F	2,000	3.7	1.85	34	205	24	240.00	96	0.1	2.0	187	5.7	81
19-Jul-21	25-Aug-21	881	M	0	3.3	1.32	35	225	27	135.00	230	0.2	2.5	139	5.8	95

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19-Jul-21	25-Aug-21	882	M	0	3.5	1.40	28	104	28	NA	192	0.1	2.5	201	6.0	65
20-Jul-21	25-Aug-21	949	M	0	3.2	1.45	34	153	26	130.00	179	0.2	2.2	191	5.4	107
20-Jul-21	25-Aug-21	950	M	0	3.4	1.13	35	89	27	270.00	174	0.1	3.0	197	6.4	67
23-Jul-21	26-Aug-21	975	M	0	3.1	1.35	42	128	24	NA	239	0.1	2.3	198	5.4	159
23-Jul-21	26-Aug-21	976	M	0	3.2	1.14	31	112	24	240.00	204	0.1	2.8	200	6.0	63
22-Jul-21	26-Aug-21	1001	M	0	2.7	1.42	39	154	18	180.00	156	0.1	1.9	262	4.6	80
22-Jul-21	26-Aug-21	1002	M	0	3.2	1.45	49	124	31	310.00	26	0.1	2.2	215	5.4	148
21-Jul-21	25-Aug-21	1005	M	0	2.8	1.08	33	101	52	130.00	128	0.4	2.6	152	5.4	54
21-Jul-21	25-Aug-21	1006	M	0	3.3	1.50	36	102	18	180.00	174	0.1	2.2	195	5.5	62
20-Jul-21	25-Aug-21	913	M	125	3.5	1.40	30	100	28	NA	188	0.1	2.5	187	6.0	159
20-Jul-21	25-Aug-21	914	M	125	3.3	1.27	39	115	22	NA	229	0.1	2.6	141	5.9	123
21-Jul-21	25-Aug-21	927	M	125	2.8	1.22	39	151	25	125.00	241	0.2	2.3	238	5.1	141
21-Jul-21	25-Aug-21	928	M	125	2.8	1.33	31	147	28	NA	129	0.1	2.1	216	4.9	60
23-Jul-21	26-Aug-21	935	M	125	3.2	1.28	30	91	45	NA	233	0.1	2.5	150	5.7	143
23-Jul-21	26-Aug-21	936	M	125	3.3	1.57	33	121	30	NA	217	0.1	2.1	175	5.4	77
19-Jul-21	25-Aug-21	987	M	125	3.0	0.97	43	219	31	310.00	114	0.1	3.1	150	6.1	52
19-Jul-21	25-Aug-21	988	M	125	3.2	1.45	27	156	29	290.00	245	0.1	2.2	194	5.4	94
22-Jul-21	26-Aug-21	997	M	125	3.2	1.39	32	81	30	NA	130	0.1	2.3	173	5.5	60
22-Jul-21	26-Aug-21	998	M	125	3.1	1.41	43	124	25	NA	124	0.1	2.2	152	5.3	48
22-Jul-21	26-Aug-21	907	M	250	3.2	1.39	38	69	28	280.00	189	0.1	2.3	173	5.5	125
22-Jul-21	26-Aug-21	908	M	250	3.3	1.32	55	127	19	NA	232	0.1	2.5	203	5.8	160

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23-Jul-21	26-Aug-21	915	M	250	3.1	1.48	35	193	28	NA	160	0.1	2.1	186	5.2	139
23-Jul-21	26-Aug-21	916	M	250	3.2	1.33	43	108	33	NA	264	0.1	2.4	177	5.6	186
20-Jul-21	25-Aug-21	933	M	250	3.1	1.41	28	141	29	NA	188	0.1	2.2	174	5.3	157
20-Jul-21	25-Aug-21	934	M	250	3.4	1.48	30	115	24	120.00	183	0.2	2.3	159	5.7	99
19-Jul-21	25-Aug-21	939	M	250	3.1	1.29	31	149	26	NA	171	0.1	2.4	143	5.5	89
19-Jul-21	25-Aug-21	940	M	250	3.1	1.19	36	143	27	270.00	154	0.1	2.6	161	5.7	84
21-Jul-21	25-Aug-21	985	M	250	3.6	1.57	42	136	22	NA	217	0.1	2.3	161	5.9	123
21-Jul-21	25-Aug-21	986	M	250	3.2	1.33	37	157	34	NA	183	0.1	2.4	157	5.6	38

Table F-16. NRL 502W Clinical Chemistry Data

Nec. date	Run date	ID	Sex	Dose (mg/L)	ALB (g/dL)	ALB / GLOB ratio (g/dL)	ALT (U/L)	AST (U/L)	BUN (mg/dL)	BUN / CREA ratio	CHOL (mg/dL)	CREA (mg/dL)	GLOB calc. (g/dL)	GLU (mg/dL)	TP (g/dL)	TRIG (g/dL)
26-May-21	29-Jul-21	633	F	0	3.7	1.54	20	124	14	140.00	166	0.1	2.4	149	6.1	106
28-May-21	29-Jul-21	685	F	0	3.5	1.75	32	124	14	70.00	142	0.2	2.0	191	5.5	94
28-May-21	29-Jul-21	686	F	0	3.7	1.61	29	148	17	85.00	116	0.2	2.3	156	6.0	83
24-May-21	28-Jul-21	689	F	0	3.4	1.36	31	176	22	73.33	147	0.3	2.5	151	5.9	109
24-May-21	28-Jul-21	690	F	0	3.2	1.19	26	209	19	95.00	175	0.2	2.7	138	5.9	100
25-May-21	29-Jul-21	697	F	0	3.9	1.56	46	418	18	NA	180	0.1	2.5	148	6.4	105
25-May-21	29-Jul-21	698	F	0	3.7	1.48	32	343	17	170.00	111	0.1	2.5	138	6.2	83
27-May-21	29-Jul-21	733	F	0	3.6	1.44	24	113	18	90.00	187	0.2	2.5	167	6.1	170
27-May-21	29-Jul-21	734	F	0	3.3	1.94	14	92	66	66.00	93	1.0	1.7	258	5.0	69
25-May-21	29-Jul-21	623	F	125	3.2	1.39	28	159	92	115.00	140	0.8	2.3	144	5.5	172
25-May-21	29-Jul-21	624	F	125	3.6	1.64	25	169	19	190.00	154	0.1	2.2	173	5.8	174
26-May-21	29-Jul-21	639	F	125	3.6	1.57	18	112	15	50.00	159	0.3	2.3	195	5.9	123
26-May-21	29-Jul-21	640	F	125	3.7	1.68	25	173	22	110.00	127	0.2	2.2	187	5.9	72
24-May-21	28-Jul-21	673	F	125	3.7	1.61	33	196	15	75.00	139	0.2	2.3	163	6.0	117
24-May-21	28-Jul-21	674	F	125	3.7	1.48	31	170	22	110.00	175	0.2	2.5	136	6.2	113
27-May-21	29-Jul-21	703	F	125	3.4	1.42	28	127	21	105.00	143	0.2	2.4	175	5.8	81
27-May-21	29-Jul-21	704	F	125	3.3	1.37	27	92	19	63.33	160	0.3	2.4	161	5.7	154
28-May-21	29-Jul-21	709	F	125	3.7	1.61	26	111	15	75.00	167	0.2	2.3	194	6.0	99

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28-May-21	29-Jul-21	710	F	125	3.7	1.32	21	106	21	70.00	152	0.3	2.8	157	6.5	85
26-May-21	29-Jul-21	635	F	250	3.0	1.36	21	121	121	57.62	79	2.1	2.2	140	5.2	137
26-May-21	29-Jul-21	636	F	250	3.4	1.48	16	79	21	105.00	122	0.2	2.3	197	5.7	49
25-May-21	29-Jul-21	705	F	250	3.4	1.36	20	193	11	55.00	147	0.2	2.5	159	5.9	83
25-May-21	29-Jul-21	706	F	250	3.9	1.77	32	382	15	75.00	176	0.2	2.2	172	6.1	60
24-May-21	28-Jul-21	707	F	250	3.6	1.80	24	144	19	95.00	93	0.2	2.0	169	5.6	58
24-May-21	28-Jul-21	708	F	250	3.4	1.21	33	272	23	230.00	139	0.1	2.8	181	6.2	66
28-May-21	29-Jul-21	715	F	250	3.9	1.86	24	108	14	70.00	128	0.2	2.1	169	6.0	121
28-May-21	29-Jul-21	716	F	250	3.5	1.46	30	143	17	85.00	218	0.2	2.4	191	5.9	118
27-May-21	29-Jul-21	727	F	250	3.4	1.42	15	108	71	41.76	205	1.7	2.4	189	5.8	61
27-May-21	29-Jul-21	728	F	250	3.6	1.24	24	126	21	105.00	173	0.2	2.9	168	6.5	82
24-May-21	28-Jul-21	637	F	500	3.9	1.95	25	231	24	120.00	87	0.2	2.0	155	5.9	89
24-May-21	28-Jul-21	638	F	500	3.9	1.77	36	206	20	100.00	136	0.2	2.2	155	6.1	84
28-May-21	29-Jul-21	645	F	500	3.2	1.39	25	115	20	66.67	162	0.2	2.3	195	5.5	220
28-May-21	29-Jul-21	646	F	500	3.5	1.13	26	115	18	60.00	132	0.3	3.1	175	6.6	100
25-May-21	29-Jul-21	679	F	500	3.7	1.68	47	464	27	90.00	112	0.3	2.2	158	5.9	78
25-May-21	29-Jul-21	680	F	500	3.3	1.43	25	196	16	NA	145	0.1	2.3	184	5.6	115
27-May-21	29-Jul-21	691	F	500	3.5	1.59	21	137	15	75.00	92	0.2	2.2	175	5.7	80
27-May-21	29-Jul-21	692	F	500	3.7	1.42	21	115	16	80.00	175	0.2	2.6	154	6.3	91
26-May-21	29-Jul-21	719	F	500	3.8	1.73	15	95	14	70.00	129	0.2	2.2	170	6.0	109
26-May-21	29-Jul-21	720	F	500	3.6	1.33	19	113	15	150.00	159	0.1	2.7	211	6.3	106

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28-May-21	29-Jul-21	667	F	1,000	3.7	1.32	25	84	19	63.33	171	0.3	2.8	150	6.5	89
28-May-21	29-Jul-21	668	F	1,000	3.3	1.37	22	126	18	60.00	139	0.3	2.4	192	5.7	99
25-May-21	29-Jul-21	693	F	1,000	3.7	1.68	47	423	19	95.00	207	0.2	2.2	215	5.9	102
25-May-21	29-Jul-21	694	F	1,000	3.9	1.56	71	504	24	NA	145	0.1	2.5	132	6.4	82
24-May-21	28-Jul-21	695	F	1,000	3.1	1.24	26	204	17	85.00	155	0.2	2.5	130	5.6	128
24-May-21	28-Jul-21	696	F	1,000	3.3	1.37	25	266	17	85.00	176	0.2	2.4	144	5.7	158
26-May-21	29-Jul-21	701	F	1,000	3.5	1.46	26	113	21	70.00	198	0.3	2.4	166	5.9	82
26-May-21	29-Jul-21	702	F	1,000	3.7	1.68	24	109	21	105.00	181	0.2	2.2	190	5.9	136
27-May-21	29-Jul-21	711	F	1,000	3.5	1.46	37	109	16	80.00	158	0.2	2.4	159	5.9	124
27-May-21	29-Jul-21	712	F	1,000	3.6	1.64	25	108	17	85.00	129	0.2	2.2	124	5.8	121
24-May-21	28-Jul-21	631	F	2,000	3.9	1.70	38	348	23	230.00	208	0.1	2.3	139	6.2	97
24-May-21	28-Jul-21	632	F	2,000	3.9	1.70	33	283	20	100.00	156	0.2	2.3	227	6.2	118
28-May-21	29-Jul-21	653	F	2,000	3.4	1.79	13	81	16	80.00	110	0.2	1.9	219	5.3	76
28-May-21	29-Jul-21	654	F	2,000	3.8	1.58	28	166	16	80.00	186	0.2	2.4	212	6.2	122
27-May-21	29-Jul-21	669	F	2,000	3.9	1.56	49	210	15	75.00	152	0.2	2.5	154	6.4	115
27-May-21	29-Jul-21	670	F	2,000	3.3	1.32	19	118	19	95.00	150	0.2	2.5	199	5.8	88
25-May-21	29-Jul-21	677	F	2,000	3.9	1.44	25	157	18	180.00	154	0.1	2.7	154	6.6	77
25-May-21	29-Jul-21	678	F	2,000	4.0	1.90	35	245	18	NA	181	0.1	2.1	189	6.1	108
26-May-21	29-Jul-21	687	F	2,000	3.3	1.43	19	87	57	51.82	133	1.1	2.3	164	5.6	137
26-May-21	29-Jul-21	688	F	2,000	3.3	1.50	15	115	16	80.00	142	0.2	2.2	156	5.5	162
27-May-21	29-Jul-21	537	M	0	3.2	1.03	43	274	29	NA	212	0.1	3.1	199	6.3	92

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27-May-21	29-Jul-21	538	M	0	3.5	1.30	32	230	37	370.00	191	0.1	2.7	177	6.2	97
24-May-21	28-Jul-21	577	M	0	3.6	1.44	41	196	26	130.00	200	0.2	2.5	158	6.1	168
24-May-21	28-Jul-21	578	M	0	3.1	1.07	54	237	30	300.00	245	0.1	2.9	153	6.0	145
25-May-21	29-Jul-21	589	M	0	3.2	1.19	49	12	34	170.00	229	0.2	2.7	155	5.9	199
28-May-21	29-Jul-21	591	M	0	3.4	1.21	43	238	22	110.00	222	0.2	2.8	187	6.2	134
28-May-21	29-Jul-21	592	M	0	3.5	1.09	49	258	30	150.00	268	0.2	3.2	158	6.7	133
26-May-21	29-Jul-21	611	M	0	3.0	1.15	28	108	28	140.00	211	0.2	2.6	202	5.6	73
26-May-21	29-Jul-21	612	M	0	2.9	1.00	40	133	21	105.00	144	0.2	2.9	163	5.8	85
28-May-21	29-Jul-21	523	M	125	3.2	1.10	57	232	24	120.00	198	0.2	2.9	168	6.1	234
28-May-21	29-Jul-21	524	M	125	3.4	1.13	82	407	43	215.00	244	0.2	3.1	141	6.6	124
24-May-21	28-Jul-21	545	M	125	3.6	1.38	62	304	32	320.00	235	0.1	2.6	132	6.2	235
24-May-21	28-Jul-21	546	M	125	3.0	1.43	42	251	25	NA	146	0.1	2.1	223	5.1	208
26-May-21	29-Jul-21	549	M	125	3.4	1.42	28	122	23	NA	139	0.1	2.4	175	5.8	97
26-May-21	29-Jul-21	550	M	125	3.2	1.28	30	137	24	120.00	171	0.2	2.5	219	5.7	96
25-May-21	29-Jul-21	573	M	125	3.3	1.50	31	116	22	110.00	232	0.2	2.2	186	5.5	168
25-May-21	29-Jul-21	574	M	125	3.6	1.44	52	129	24	240.00	140	0.1	2.5	193	6.1	93
27-May-21	29-Jul-21	575	M	125	3.3	1.22	51	171	27	270.00	168	0.1	2.7	213	6.0	163
27-May-21	29-Jul-21	576	M	125	3.7	1.32	61	379	33	165.00	167	0.2	2.8	207	6.5	105
27-May-21	29-Jul-21	497	M	250	3.4	0.97	51	207	25	125.00	193	0.2	3.5	172	6.9	156
27-May-21	29-Jul-21	498	M	250	3.2	1.39	37	286	26	130.00	182	0.2	2.3	260	5.5	123
26-May-21	29-Jul-21	505	M	250	3.4	1.36	36	141	25	250.00	137	0.1	2.5	169	5.9	158

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28-May-21	29-Jul-21	555	M	250	3.2	1.33	52	201	39	195.00	172	0.2	2.4	200	5.6	119
28-May-21	29-Jul-21	556	M	250	3.3	1.27	71	293	32	NA	240	0.1	2.6	241	5.9	136
24-May-21	28-Jul-21	569	M	250	3.4	1.42	33	166	23	230.00	265	0.1	2.4	198	5.8	127
24-May-21	28-Jul-21	570	M	250	3.3	1.18	41	254	30	NA	206	0.1	2.8	208	6.1	72
25-May-21	29-Jul-21	581	M	250	3.3	1.32	47	116	26	NA	142	0.1	2.5	169	5.8	138
25-May-21	29-Jul-21	582	M	250	3.5	1.35	46	220	28	NA	240	0.1	2.6	190	6.1	118

Table F-17. Re-Healing Clinical Chemistry Data

Nec. date	Run date	ID	Sex	Dose (mg/L)	ALB (g/dL)	ALB / GLOB ratio (g/dL)	ALT (U/L)	AST (U/L)	BUN (mg/dL)	BUN / CREA ratio	CHOL (mg/dL)	CREA (mg/dL)	GLOB calc. (g/dL)	GLU (mg/dL)	TP (g/dL)	TRIG (g/dL)
23-Jun-21	11-Aug-21	1027	F	0	4.1	1.52	48	342	21	105.00	139	0.2	2.7	153	6.8	108
23-Jun-21	11-Aug-21	1028	F	0	4.4	1.91	70	491	23	115.00	166	0.2	2.3	40	6.7	161
25-Jun-21	11-Aug-21	1033	F	0	3.6	1.57	30	178	18	90.00	119	0.2	2.3	153	5.9	150
25-Jun-21	11-Aug-21	1034	F	0	3.5	1.52	25	120	14	46.67	150	0.3	2.3	147	5.8	105
22-Jun-21	10-Aug-21	1069	F	0	3.5	1.67	25	134	32	53.33	196	0.6	2.1	147	5.6	169
22-Jun-21	10-Aug-21	1070	F	0	3.4	1.89	41	200	17	85.00	133	0.2	1.8	174	5.2	115
24-Jun-21	11-Aug-21	1083	F	0	3.4	1.36	28	112	16	160.00	121	0.1	2.5	172	5.9	102
24-Jun-21	11-Aug-21	1084	F	0	3.6	1.80	33	118	23	76.67	148	0.3	2.0	170	5.6	90
21-Jun-21	10-Aug-21	1115	F	0	3.9	1.95	19	148	18	NA	149	0.1	2.0	147	5.9	120
21-Jun-21	10-Aug-21	1116	F	0	3.9	1.95	28	177	14	NA	134	0.1	2.0	117	5.9	77
23-Jun-21	11-Aug-21	1017	F	125	3.8	1.52	45	181	19	95.00	207	0.2	2.5	149	6.3	123
23-Jun-21	11-Aug-21	1018	F	125	3.7	1.76	41	278	16	80.00	147	0.2	2.1	167	5.8	126
22-Jun-21	10-Aug-21	1025	F	125	3.8	1.81	42	139	13	65.00	136	0.2	2.1	147	5.9	144
22-Jun-21	10-Aug-21	1026	F	125	3.8	1.65	43	186	15	75.00	190	0.2	2.3	148	6.1	105
21-Jun-21	10-Aug-21	1055	F	125	3.5	1.84	32	162	12	NA	141	0.1	1.9	143	5.4	93
21-Jun-21	10-Aug-21	1056	F	125	3.6	1.71	27	112	16	NA	185	0.1	2.1	172	5.7	113
25-Jun-21	11-Aug-21	1061	F	125	3.8	1.90	24	140	17	170.00	113	0.1	2.0	138	5.8	89
25-Jun-21	11-Aug-21	1062	F	125	3.8	1.81	40	267	17	56.67	137	0.3	2.1	146	5.9	78

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24-Jun-21	11-Aug-21	1085	F	125	3.4	1.48	22	133	13	65.00	140	0.2	2.3	147	5.7	115
24-Jun-21	11-Aug-21	1086	F	125	3.7	1.85	27	203	29	96.67	173	0.3	2.0	153	5.7	163
22-Jun-21	10-Aug-21	1067	F	250	3.3	1.65	29	151	20	100.00	129	0.2	2.0	138	5.3	134
22-Jun-21	10-Aug-21	1068	F	250	3.6	1.89	29	145	16	80.00	123	0.2	1.9	176	5.5	108
21-Jun-21	10-Aug-21	1073	F	250	3.7	1.76	25	151	13	43.33	130	0.3	2.1	157	5.8	143
21-Jun-21	10-Aug-21	1074	F	250	3.7	1.76	35	132	21	70.00	149	0.3	2.1	151	5.8	157
23-Jun-21	11-Aug-21	1101	F	250	4.0	1.60	53	367	18	180.00	169	0.1	2.5	44	6.5	115
23-Jun-21	11-Aug-21	1102	F	250	4.3	1.59	89	521	24	NA	191	0.1	2.7	20	7.0	132
25-Jun-21	11-Aug-21	1121	F	250	3.3	1.50	25	112	21	105.00	136	0.2	2.2	181	5.5	84
25-Jun-21	11-Aug-21	1122	F	250	3.6	1.71	21	143	17	85.00	130	0.2	2.1	186	5.7	108
24-Jun-21	11-Aug-21	1123	F	250	3.3	1.43	23	114	18	60.00	133	0.3	2.3	171	5.6	75
24-Jun-21	11-Aug-21	1124	F	250	2.9	1.81	27	146	18	180.00	104	0.1	1.6	252	4.5	102
23-Jun-21	11-Aug-21	1041	F	500	4.0	1.54	47	305	19	95.00	170	0.2	2.6	44	6.6	117
23-Jun-21	11-Aug-21	1042	F	500	4.0	1.74	59	358	20	NA	135	0.1	2.3	45	6.3	52
24-Jun-21	11-Aug-21	1043	F	500	3.4	1.70	28	119	44	73.33	162	0.6	2.0	177	5.4	125
24-Jun-21	11-Aug-21	1044	F	500	3.2	1.45	29	164	21	70.00	114	0.3	2.2	186	5.4	85
21-Jun-21	10-Aug-21	1045	F	500	3.5	1.75	30	179	104	65.00	153	1.6	2.0	137	5.5	97
21-Jun-21	10-Aug-21	1046	F	500	3.9	1.70	45	173	20	100.00	209	0.2	2.3	175	6.2	102
25-Jun-21	11-Aug-21	1109	F	500	3.9	1.77	23	122	82	91.11	122	0.9	2.2	165	6.1	106
25-Jun-21	11-Aug-21	1110	F	500	3.5	1.84	34	148	20	100.00	144	0.2	1.9	197	5.4	117
22-Jun-21	10-Aug-21	1111	F	500	3.1	1.55	27	205	21	105.00	87	0.2	2.0	159	5.1	83

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22-Jun-21	10-Aug-21	1112	F	500	3.7	1.76	31	152	17	56.67	175	0.3	2.1	215	5.8	93
24-Jun-21	11-Aug-21	1035	F	1,000	3.9	1.86	46	391	18	NA	203	0.1	2.1	177	6.0	94
24-Jun-21	11-Aug-21	1036	F	1,000	3.8	1.81	41	329	19	NA	166	0.1	2.1	181	5.9	111
25-Jun-21	11-Aug-21	1037	F	1,000	3.7	1.76	29	189	22	110.00	154	0.2	2.1	136	5.8	111
25-Jun-21	11-Aug-21	1038	F	1,000	3.3	1.65	26	163	17	85.00	150	0.2	2.0	164	5.3	204
22-Jun-21	10-Aug-21	1087	F	1,000	3.6	1.57	29	168	19	63.33	206	0.3	2.3	191	5.9	73
21-Jun-21	10-Aug-21	1095	F	1,000	3.1	1.72	9	165	311	115.18	133	2.7	1.8	137	4.9	109
21-Jun-21	10-Aug-21	1096	F	1,000	3.8	1.65	18	113	21	105.00	130	0.2	2.3	145	6.1	139
23-Jun-21	11-Aug-21	1117	F	1,000	4.0	1.60	85	596	22	NA	208	0.1	2.5	35	6.5	118
23-Jun-21	11-Aug-21	1118	F	1,000	4.2	1.31	76	544	24	NA	152	0.1	3.2	47	7.4	149
25-Jun-21	11-Aug-21	1039	F	2,000	3.8	1.65	28	158	21	105.00	202	0.2	2.3	188	6.1	113
25-Jun-21	11-Aug-21	1040	F	2,000	3.6	1.64	34	150	16	53.33	171	0.3	2.2	159	5.8	109
24-Jun-21	11-Aug-21	1075	F	2,000	3.4	1.48	20	112	16	160.00	202	0.1	2.3	128	5.7	98
24-Jun-21	11-Aug-21	1076	F	2,000	3.4	1.62	33	150	20	100.00	162	0.2	2.1	145	5.5	125
21-Jun-21	10-Aug-21	1091	F	2,000	3.5	1.75	47	298	12	60.00	122	0.2	2.0	127	5.5	86
21-Jun-21	10-Aug-21	1092	F	2,000	3.8	1.73	25	166	15	150.00	227	0.1	2.2	127	6.0	146
23-Jun-21	11-Aug-21	1097	F	2,000	4.0	1.60	68	435	25	62.50	233	0.4	2.5	49	6.5	93
23-Jun-21	11-Aug-21	1098	F	2,000	4.0	1.60	74	476	21	210.00	170	0.1	2.5	53	6.5	181
22-Jun-21	10-Aug-21	1125	F	2,000	3.4	1.62	26	122	16	53.33	142	0.3	2.1	211	5.5	71
22-Jun-21	10-Aug-21	1126	F	2,000	3.8	1.81	26	164	15	150.00	157	0.1	2.1	188	5.9	111
22-Jun-21	10-Aug-21	769	M	0	3.3	1.37	50	210	31	NA	220	0.1	2.4	218	5.7	240

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22-Jun-21	10-Aug-21	770	M	0	3.5	1.21	42	370	31	NA	224	0.1	2.9	177	6.4	151
24-Jun-21	11-Aug-21	797	M	0	3.4	1.17	48	236	29	145.00	250	0.2	2.9	162	6.3	229
24-Jun-21	11-Aug-21	798	M	0	3.3	1.18	45	212	24	120.00	166	0.2	2.8	166	6.1	143
23-Jun-21	10-Aug-21	813	M	0	3.6	1.33	50	317	27	270.00	231	0.1	2.7	153	6.3	146
23-Jun-21	10-Aug-21	814	M	0	3.6	1.50	35	199	37	123.33	198	0.3	2.4	196	6.0	115
25-Jun-21	11-Aug-21	857	M	0	3.4	1.48	53	265	24	120.00	186	0.2	2.3	187	5.7	113
25-Jun-21	11-Aug-21	858	M	0	3.3	1.27	42	204	22	220.00	291	0.1	2.6	156	5.9	107
21-Jun-21	10-Aug-21	877	M	0	3.3	1.37	35	145	24	120.00	194	0.2	2.4	146	5.7	107
21-Jun-21	10-Aug-21	878	M	0	3.3	1.37	44	205	24	NA	263	0.1	2.4	172	5.7	166
24-Jun-21	11-Aug-21	755	M	125	3.7	1.48	44	243	37	185.00	199	0.2	2.5	164	6.2	242
24-Jun-21	11-Aug-21	756	M	125	3.2	1.14	47	489	65	216.67	190	0.3	2.8	139	6.0	115
23-Jun-21	10-Aug-21	765	M	125	3.7	1.37	69	399	28	140.00	221	0.2	2.7	162	6.4	137
23-Jun-21	10-Aug-21	766	M	125	3.4	1.36	54	382	38	NA	250	0.1	2.5	145	5.9	128
21-Jun-21	10-Aug-21	827	M	125	3.2	1.45	44	114	29	145.00	202	0.2	2.2	196	5.4	207
21-Jun-21	10-Aug-21	828	M	125	3.7	1.54	40	104	29	290.00	173	0.1	2.4	241	6.1	95
22-Jun-21	10-Aug-21	859	M	125	3.4	1.21	68	254	30	300.00	259	0.1	2.8	171	6.2	214
22-Jun-21	10-Aug-21	860	M	125	3.6	1.57	69	439	21	NA	148	0.1	2.3	188	5.9	79
25-Jun-21	11-Aug-21	865	M	125	3.5	1.40	79	249	25	250.00	197	0.1	2.5	182	6.0	111
25-Jun-21	11-Aug-21	866	M	125	3.5	1.30	38	229	22	110.00	184	0.2	2.7	202	6.2	59
24-Jun-21	11-Aug-21	817	M	250	3.2	1.23	46	288	36	180.00	141	0.2	2.6	181	5.8	99
24-Jun-21	11-Aug-21	818	M	250	3.5	1.25	51	297	31	NA	242	0.1	2.8	198	6.3	88

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25-Jun-21	11-Aug-21	829	M	250	3.6	1.33	49	251	29	290.00	189	0.1	2.7	175	6.3	131
25-Jun-21	11-Aug-21	830	M	250	3.6	1.57	38	185	29	145.00	217	0.2	2.3	171	5.9	188
22-Jun-21	10-Aug-21	833	M	250	3.8	1.46	75	412	32	NA	210	0.1	2.6	192	6.4	256
22-Jun-21	10-Aug-21	834	M	250	3.8	1.52	46	193	22	NA	155	0.1	2.5	239	6.3	149
21-Jun-21	10-Aug-21	841	M	250	3.0	1.11	42	165	27	90.00	182	0.3	2.7	145	5.7	287
21-Jun-21	10-Aug-21	842	M	250	ND	NA	61	406	ND	NA	ND	0.1	NA	ND	5.8	51
23-Jun-21	10-Aug-21	847	M	250	3.3	1.43	70	269	36	180.00	198	0.2	2.3	190	5.6	164
23-Jun-21	11-Aug-21	848	M	250	3.4	1.42	56	360	29	290.00	161	0.1	2.4	160	5.8	114

Table F-18a. Avio Green Hematology Data

Date	ID	Sex	Dose (mg/L)	Sample Type	WBC (K/uL)	RBC (M/uL)	HGB (g/dL)	HCT (%)	MCV (fL)	MCH (pg)	MCHC (g/dL)	PLT (K/uL)	RDW-SD (fL)	RDW-CV (%)	MPV (fL)
18-May-21	643	F	0	1:7 Pre-Dilution	6.57	10.98	17.2	52.0	47.4	15.7	33.1	866	22.5	12.0	9.3
18-May-21	644	F	0	1:7 Pre-Dilution	2.14	10.51	16.3	48.8	46.4	15.5	33.4	1146	22.9	12.3	6.9
17-May-21	651	F	0	1:7 Pre-Dilution	4.73	9.58	15.3	46.7	48.7	16.0	32.8	254	24.6	12.5	8.8
17-May-21	652	F	0	1:7 Pre-Dilution	4.46	9.94	15.7	48.6	48.9	15.8	32.3	672	24.5	12.5	8.6
19-May-21	735	F	0	1:7 Pre-Dilution	9.05	11.01	16.6	51.0	46.3	15.1	32.5	1022	21.7	11.8	7.2
19-May-21	736	F	0	1:7 Pre-Dilution	4.00	9.29	14.8	44.4	47.8	15.9	33.3	958	23.9	12.5	7.8
20-May-21	737	F	0	1:7 Pre-Dilution	6.65	9.63	14.6	46.4	48.2	15.2	31.5	836	24.8	12.9	8.5
20-May-21	738	F	0	1:7 Pre-Dilution	3.77	11.34	16.9	51.1	45.1	14.9	33.1	1181	21.3	12.0	7.1
21-May-21	739	F	0	1:7 Pre-Dilution	4.90	9.78	14.7	45.7	46.7	15.0	32.2	897	24.0	12.9	8.2
21-May-21	740	F	0	1:7 Pre-Dilution	4.18	9.39	14.7	44.7	47.6	15.7	32.9	1073	25.5	13.4	7.0
19-May-21	641	F	125	1:7 Pre-Dilution	5.81	9.37	14.4	45.0	48.0	15.4	32.0	1297	24.3	12.5	8.1
19-May-21	642	F	125	1:7 Pre-Dilution	6.30	10.07	15.0	47.3	47.0	14.9	31.7	1007	22.8	12.3	7.5
17-May-21	661	F	125	1:7 Pre-Dilution	6.96	11.02	16.4	50.7	46.0	14.9	32.3	939	23.4	12.6	7.9
17-May-21	662	F	125	1:7 Pre-Dilution	6.13	10.75	15.8	50.6	47.1	14.7	31.2	821	23.6	12.7	9.0
21-May-21	663	F	125	1:7 Pre-Dilution	4.79	9.85	14.9	46.0	46.7	15.1	32.4	978	26.3	14.4	8.8
21-May-21	664	F	125	1:7 Pre-Dilution	6.09	9.27	15.0	45.7	49.3	16.2	32.8	1115	24.6	12.4	8.2
18-May-21	681	F	125	1:7 Pre-Dilution	6.60	9.18	14.4	44.4	48.4	15.7	32.4	1138	24.4	12.6	8.1
18-May-21	682	F	125	1:7 Pre-Dilution	4.66	9.56	15.6	48.4	50.6	16.3	32.2	823	23.8	11.8	9.6
20-May-21	721	F	125	1:7 Pre-Dilution	8.09	10.01	15.2	47.5	47.5	15.2	32.0	1021	22.5	12.0	9.0
20-May-21	722	F	125	1:7 Pre-Dilution	5.56	9.63	15.0	45.6	47.4	15.6	32.9	1286	23.6	12.7	8.2
17-May-21	659	F	250	1:7 Pre-Dilution	5.31	10.70	15.2	47.5	44.4	14.2	32.0	1585	22.4	12.7	6.7
17-May-21	660	F	250	1:7 Pre-Dilution	3.80	10.61	16.4	50.7	47.8	15.5	32.3	1428	24.1	12.8	8.4
18-May-21	675	F	250	1:7 Pre-Dilution	5.45	10.82	16.1	51.0	47.1	14.9	31.6	945	23.8	12.8	9.1
18-May-21	676	F	250	1:7 Pre-Dilution	2.97	9.80	14.6	45.6	46.5	14.9	32.0	1098	22.4	12.2	7.7
20-May-21	683	F	250	1:7 Pre-Dilution	11.96	10.32	16.3	49.9	48.4	15.8	32.7	1052	22.6	11.8	7.8
20-May-21	684	F	250	1:7 Pre-Dilution	5.86	10.96	16.5	51.3	46.8	15.1	32.2	543	23.5	12.6	9.2
21-May-21	699	F	250	1:7 Pre-Dilution	9.00	9.60	15.7	47.4	49.4	16.4	33.1	958	23.9	12.1	8.4
21-May-21	700	F	250	1:7 Pre-Dilution	5.78	7.21	11.4	36.1	50.1	15.8	31.6	1060	24.9	13.9	8.2

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19-May-21	731	F	250	1:7 Pre-Dilution	7.58	10.16	15.5	47.0	46.3	15.3	33.0	1064	21.2	11.6	7.7
19-May-21	732	F	250	1:7 Pre-Dilution	11.55	10.02	15.0	46.5	46.4	15.0	32.3	1061	23.2	12.5	8.2
18-May-21	625	F	500	1:7 Pre-Dilution	2.62	9.33	14.8	45.7	49.0	15.9	32.4	1084	25.9	13.3	7.5
18-May-21	626	F	500	1:7 Pre-Dilution	4.88	10.28	15.2	47.2	45.9	14.8	32.2	924	23.3	12.7	8.6
19-May-21	647	F	500	1:7 Pre-Dilution	5.02	9.89	14.6	45.8	46.3	14.8	31.9	1101	22.4	12.2	8.3
19-May-21	648	F	500	1:7 Pre-Dilution	10.10	10.90	17.0	51.4	47.2	15.6	33.1	1031	21.9	11.6	7.0
21-May-21	671	F	500	1:7 Pre-Dilution	6.12	9.95	16.3	49.8	50.1	16.4	32.7	1282	25.1	12.5	8.1
21-May-21	672	F	500	1:7 Pre-Dilution	6.28	11.17	17.0	52.7	47.2	15.2	32.3	952	24.0	12.8	7.2
20-May-21	713	F	500	1:7 Pre-Dilution	7.34	11.24	16.7	51.6	45.9	14.9	32.4	945	22.4	12.1	8.3
20-May-21	714	F	500	1:7 Pre-Dilution	5.37	9.41	14.6	44.2	47.0	15.5	33.0	1270	22.1	11.8	7.1
17-May-21	725	F	500	1:7 Pre-Dilution	7.70	9.76	15.1	47.1	48.3	15.5	32.1	1232	22.9	12.0	9.0
17-May-21	726	F	500	1:7 Pre-Dilution	4.00	10.36	15.2	48.0	46.3	14.7	31.7	1339	25.5	13.9	7.3
19-May-21	627	F	1,000	1:7 Pre-Dilution	8.10	9.75	16.0	49.0	50.3	16.4	32.7	1370	22.6	11.2	7.1
19-May-21	628	F	1,000	1:7 Pre-Dilution	6.03	11.32	16.9	53.5	47.3	14.9	31.6	999	24.2	12.9	8.3
17-May-21	629	F	1,000	1:7 Pre-Dilution	10.43	9.82	15.6	49.7	50.6	15.9	31.4	739	29.5	14.8	8.9
17-May-21	630	F	1,000	1:7 Pre-Dilution	6.34	10.53	15.6	50.1	47.6	14.8	31.1	750	22.6	12.1	8.2
20-May-21	649	F	1,000	1:7 Pre-Dilution	4.89	9.60	15.0	45.5	47.4	15.6	33.0	1068	25.2	13.7	8.9
20-May-21	650	F	1,000	1:7 Pre-Dilution	2.24	8.88	14.6	43.4	48.9	16.4	33.6	959	25.3	13.0	7.4
21-May-21	723	F	1,000	1:7 Pre-Dilution	4.75	10.15	15.2	47.3	46.6	15.0	32.1	1371	22.0	11.8	6.8
21-May-21	724	F	1,000	1:7 Pre-Dilution	6.55	9.82	14.8	44.8	45.6	15.1	33.0	1306	23.3	12.8	7.1
18-May-21	741	F	1,000	1:7 Pre-Dilution	10.97	11.37	17.6	53.8	47.3	15.5	32.7	880	22.2	11.8	8.7
18-May-21	742	F	1,000	1:7 Pre-Dilution	3.54	10.03	15.8	47.0	46.9	15.8	33.6	1125	26.1	14.2	7.0
17-May-21	655	F	2,000	1:7 Pre-Dilution	3.53	9.88	15.3	47.3	47.9	15.5	32.3	874	21.1	11.1	8.6
17-May-21	656	F	2,000	1:7 Pre-Dilution	5.65	11.04	16.5	50.8	46.0	14.9	32.5	942	21.5	11.7	9.0
18-May-21	657	F	2,000	1:7 Pre-Dilution	4.59	10.64	16.5	50.3	47.3	15.5	32.8	1007	21.5	11.3	7.9
18-May-21	658	F	2,000	1:7 Pre-Dilution	7.37	9.89	14.9	46.0	46.5	15.1	32.4	910	21.2	11.7	9.1
21-May-21	666	F	2,000	1:7 Pre-Dilution	5.39	9.38	14.9	46.4	49.5	15.9	32.1	1094	25.1	12.8	7.9
20-May-21	717	F	2,000	1:7 Pre-Dilution	6.00	9.97	16.1	48.3	48.4	16.1	33.3	1290	22.4	11.6	7.2
20-May-21	718	F	2,000	1:7 Pre-Dilution	4.90	10.31	15.8	47.6	46.2	15.3	33.2	1040	22.6	12.3	7.8
19-May-21	729	F	2,000	1:7 Pre-Dilution	5.96	9.59	15.2	47.4	49.4	15.8	32.1	1180	25.2	12.9	8.8
19-May-21	730	F	2,000	1:7 Pre-Dilution	4.18	10.32	16.0	49.8	48.3	15.5	32.1	1546	23.5	12.2	7.5
21-May-21	509	M	0	1:7 Pre-Dilution	6.73	11.15	17.0	53.6	48.1	15.2	31.7	1149	24.0	12.4	8.7
21-May-21	510	M	0	1:7 Pre-Dilution	6.79	9.04	13.5	43.4	48.0	14.9	31.1	1284	25.3	13.3	8.5
20-May-21	529	M	0	1:7 Pre-Dilution	6.50	10.10	15.1	48.1	47.6	15.0	31.4	998	22.4	12.0	8.8

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20-May-21	530	M	0	1:7 Pre-Dilution	5.60	10.75	16.2	51.3	47.7	15.1	31.6	1253	22.9	12.1	8.5
17-May-21	539	M	0	1:7 Pre-Dilution	6.54	9.56	14.6	48.0	50.2	15.3	30.4	615	22.7	11.4	9.5
17-May-21	540	M	0	1:7 Pre-Dilution	4.74	12.19	18.1	58.6	48.1	14.8	30.9	408	21.0	10.8	9.3
18-May-21	583	M	0	1:7 Pre-Dilution	11.06	10.28	15.3	48.6	47.3	14.9	31.5	1180	24.6	13.2	8.1
18-May-21	584	M	0	1:7 Pre-Dilution	5.80	10.15	15.9	48.3	47.6	15.7	32.9	1225	22.7	12.1	7.5
19-May-21	601	M	0	1:7 Pre-Dilution	11.42	9.79	15.2	46.4	47.4	15.5	32.8	1245	22.9	12.1	6.9
19-May-21	602	M	0	1:7 Pre-Dilution	6.99	9.84	14.5	44.6	45.3	14.7	32.5	1309	22.2	12.3	8.0
20-May-21	515	M	125	1:7 Pre-Dilution	2.89	11.39	16.9	52.0	45.7	14.8	32.5	925	21.3	11.7	8.3
20-May-21	516	M	125	1:7 Pre-Dilution	5.23	10.01	15.3	46.6	46.6	15.3	32.8	1133	21.2	11.7	6.8
18-May-21	535	M	125	1:7 Pre-Dilution	4.78	10.29	15.4	48.5	47.1	15.0	31.8	410	24.0	12.8	8.8
18-May-21	536	M	125	1:7 Pre-Dilution	8.56	9.59	15.2	47.5	49.5	15.8	32.0	805	21.2	10.7	10.4
19-May-21	547	M	125	1:7 Pre-Dilution	7.30	10.22	15.9	50.2	49.1	15.6	31.7	1184	23.1	11.7	7.9
19-May-21	548	M	125	1:7 Pre-Dilution	4.17	9.83	16.0	48.3	49.1	16.3	33.1	1426	21.0	10.8	6.8
21-May-21	567	M	125	1:7 Pre-Dilution	3.52	9.80	14.8	46.0	46.9	15.1	32.2	1254	22.3	12.0	7.4
21-May-21	568	M	125	1:7 Pre-Dilution	12.12	11.01	17.0	52.9	48.0	15.4	32.1	1041	24.4	12.5	7.7
17-May-21	607	M	125	1:7 Pre-Dilution	3.49	10.58	16.7	51.0	48.2	15.8	32.7	531	22.8	11.8	7.8
17-May-21	608	M	125	1:7 Pre-Dilution	4.38	11.05	15.9	49.8	45.1	14.4	31.9	1063	21.7	12.1	8.0
20-May-21	513	M	250	1:7 Pre-Dilution	8.24	10.67	17.1	52.3	49.0	16.0	32.7	1116	22.2	11.3	7.6
20-May-21	514	M	250	1:7 Pre-Dilution	4.02	9.25	14.8	45.2	48.9	16.0	32.7	1115	23.4	11.9	7.4
19-May-21	557	M	250	1:7 Pre-Dilution	6.81	11.21	17.0	53.1	47.4	15.2	32.0	1141	23.1	12.4	8.0
19-May-21	558	M	250	1:7 Pre-Dilution	4.95	10.19	15.9	49.8	48.9	15.6	31.9	204	23.5	11.9	8.4
18-May-21	559	M	250	1:7 Pre-Dilution	7.28	9.64	15.5	47.9	49.7	16.1	32.4	940	22.0	11.2	9.4
18-May-21	560	M	250	1:7 Pre-Dilution	5.86	10.28	15.8	50.3	48.9	15.4	31.4	1120	24.3	12.5	7.4
21-May-21	563	M	250	1:7 Pre-Dilution	2.14	10.84	16.3	50.8	46.9	15.0	32.1	1382	21.2	11.3	7.7
21-May-21	564	M	250	1:7 Pre-Dilution	4.65	9.14	13.9	43.1	47.2	15.2	32.3	1389	23.6	12.8	8.5
17-May-21	615	M	250	1:7 Pre-Dilution	15.03	8.95	13.4	42.4	47.4	15.0	31.6	462	27.5	14.4	9.0
17-May-21	616	M	250	1:7 Pre-Dilution	6.15	10.00	15.3	48.3	48.3	15.3	31.7	1428	23.4	12.1	7.1

Table F-18b. Avio Green Hematology Data continued

ID	NRBC		NEUT		LYMPH		MONO		EO		BASO		RET		IRF	RET-He	PLT-F
	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(%)	(pg)	(K/uL)
643	0.00	0.0	0.65	9.9	5.66	86.1	0.17	2.6	0.07	1.1	0.02	0.3	0.3338	3.04	52.3	18.7	866
644	0.00	0.0	0.24	11.2	1.75	81.8	0.13	6.1	0.02	0.9	0.00	0.0	0.2417	2.30	41.2	19.0	1146
651	0.00	0.0	0.40	8.5	4.02	85.0	0.11	2.3	0.19	4.0	0.01	0.2	0.5604	5.85	58.8	19.1	254
652	0.00	0.0	0.51	11.5	3.80	85.2	0.10	2.2	0.04	0.9	0.01	0.2	0.3280	3.30	55.6	19.0	672
735	0.00	0.0	0.85	9.4	8.01	88.5	0.10	1.1	0.08	0.9	0.01	0.1	0.3446	3.13	50.1	18.3	1022
736	0.04	1.0	0.23	5.7	3.60	90.0	0.10	2.5	0.07	1.8	0.00	0.0	0.2936	3.16	49.0	18.7	958
737	0.00	0.0	0.47	7.0	5.90	88.7	0.15	2.3	0.09	1.4	0.04	0.6	0.3496	3.63	57.5	18.8	836
738	0.03	0.8	0.28	7.4	3.36	89.1	0.07	1.9	0.06	1.6	0.00	0.0	0.3277	2.89	45.4	18.6	1181
739	0.00	0.0	0.47	9.7	4.24	86.5	0.12	2.4	0.06	1.2	0.01	0.2	0.4068	4.16	55.6	18.2	987
740	0.03	0.7	0.74	17.7	3.29	78.7	0.09	2.2	0.06	1.4	0.00	0.0	0.5005	5.33	62.9	19.1	1073
641	0.02	0.3	0.48	8.3	5.02	86.4	0.24	4.1	0.07	1.2	0.00	0.0	0.2118	2.26	45.0	18.5	1297
642	0.00	0.0	0.47	7.4	5.69	90.3	0.08	1.3	0.05	0.8	0.01	0.2	0.2457	2.44	50.7	18.2	1007
661	0.02	0.3	1.14	16.3	5.54	79.6	0.15	2.2	0.13	1.9	0.00	0.0	0.4199	3.81	61.3	18.2	939
662	0.00	0.0	0.73	11.8	5.19	84.7	0.14	2.3	0.06	1.0	0.01	0.2	0.4311	4.01	64.5	18.0	821
663	0.00	0.0	0.40	8.3	4.11	85.8	0.21	4.4	0.07	1.5	0.00	0.0	0.6964	7.07	62.4	18.7	978
664	0.00	0.0	0.49	8.0	5.37	88.2	0.13	2.1	0.09	1.5	0.01	0.2	0.1298	1.40	36.4	19.0	1115
681	0.06	0.9	0.71	10.8	5.58	84.5	0.16	2.4	0.14	2.1	0.01	0.2	0.2350	2.56	57.9	18.6	1138
682	0.00	0.0	0.64	13.7	3.83	82.2	0.14	3.0	0.05	1.1	0.00	0.0	0.4627	4.84	60.2	19.4	823
721	0.00	0.0	0.72	8.9	7.12	88.0	0.17	2.1	0.08	1.0	0.00	0.0	0.2933	2.93	50.9	18.4	1021
722	0.00	0.0	0.83	14.9	4.57	82.2	0.12	2.2	0.04	0.7	0.00	0.0	0.3380	3.51	59.6	18.7	1286
659	0.00	0.0	0.80	15.0	4.37	82.3	0.03	0.6	0.11	2.1	0.00	0.0	0.3799	3.55	55.4	17.5	1585
660	0.02	0.5	1.09	28.7	2.56	67.4	0.08	2.1	0.07	1.8	0.00	0.0	0.4870	4.59	63.7	18.4	1428
675	0.02	0.4	0.75	13.7	4.45	81.7	0.14	2.6	0.10	1.8	0.01	0.2	0.4025	3.72	57.1	18.6	945
676	0.00	0.0	0.42	14.2	2.26	76.1	0.20	6.7	0.09	3.0	0.00	0.0	0.3254	3.32	53.9	18.1	1098
683	0.03	0.3	1.25	10.5	10.23	85.5	0.30	2.5	0.17	1.4	0.01	0.1	0.3922	3.80	54.5	19.3	1052
684	0.00	0.0	0.59	10.1	5.10	87.0	0.12	2.0	0.05	0.9	0.00	0.0	0.3968	3.62	54.8	18.3	543
699	0.02	0.2	0.75	8.3	7.93	88.1	0.15	1.7	0.17	1.9	0.00	0.0	0.3168	3.30	61.0	19.5	958

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700	0.03	0.5	0.64	11.0	4.85	83.9	0.20	3.5	0.08	1.4	0.01	0.2	0.5213	7.23	74.2	19.5	1060
731	0.00	0.0	1.20	15.9	6.12	80.7	0.19	2.5	0.06	0.8	0.01	0.1	0.3658	3.60	60.7	18.3	1064
732	0.00	0.0	1.42	12.3	9.70	84.0	0.29	2.5	0.13	1.1	0.01	0.1	0.2866	2.86	55.6	18.2	1061
625	0.00	0.0	0.24	9.1	2.25	85.9	0.11	4.2	0.02	0.8	0.00	0.0	0.4525	4.85	56.2	19.0	1084
626	0.00	0.0	0.52	10.7	4.23	86.7	0.08	1.6	0.04	0.8	0.01	0.2	0.3125	3.04	58.5	17.9	924
647	0.03	0.6	0.89	17.7	4.00	79.7	0.10	2.0	0.02	0.4	0.01	0.2	0.3521	3.56	65.2	18.2	1101
648	0.06	0.6	0.99	9.8	8.81	87.2	0.21	2.1	0.09	0.9	0.00	0.0	0.2344	2.15	58.4	18.6	1031
671	0.00	0.0	0.52	8.5	5.38	87.9	0.14	2.3	0.08	1.3	0.00	0.0	0.3373	3.39	48.0	18.8	1282
672	0.02	0.3	0.64	10.1	5.50	87.6	0.08	1.3	0.06	1.0	0.00	0.0	0.4267	3.82	62.4	19.0	952
713	0.00	0.0	0.69	9.5	6.22	84.7	0.31	4.2	0.11	1.5	0.01	0.1	0.3844	3.42	57.2	17.8	945
714	0.00	0.0	0.77	14.3	4.38	81.6	0.12	2.2	0.09	1.7	0.01	0.2	0.3333	3.54	55.6	19.2	1270
725	0.03	0.4	0.78	10.1	6.76	87.8	0.07	0.9	0.09	1.2	0.00	0.0	0.3172	3.25	57.6	18.9	1232
726	0.02	0.5	0.54	13.5	3.32	83.0	0.10	2.5	0.04	1.0	0.00	0.0	0.5180	5.00	62.4	18.1	1339
627	0.00	0.0	0.97	12.0	6.95	85.8	0.13	1.6	0.05	0.6	0.00	0.0	0.2925	3.00	60.7	19.3	1370
628	0.02	0.3	0.74	12.2	5.10	84.6	0.15	2.5	0.03	0.5	0.01	0.2	0.3396	3.00	61.1	17.9	999
629	0.00	0.0	1.74	16.7	7.79	74.7	0.71	6.8	0.19	1.8	0.00	0.0	0.5931	6.04	66.1	19.3	739
630	0.00	0.0	0.61	9.6	5.54	87.4	0.11	1.7	0.08	1.3	0.00	0.0	0.3822	3.63	58.6	18.4	750
649	0.00	0.0	1.17	23.9	3.38	69.1	0.19	3.9	0.14	2.9	0.01	0.2	0.5962	6.21	64.3	19.4	1068
650	0.00	0.0	0.20	8.9	1.95	87.1	0.07	3.1	0.02	0.9	0.00	0.0	0.3614	4.07	62.1	19.5	959
723	0.02	0.4	0.80	16.9	3.75	78.9	0.18	3.8	0.02	0.4	0.00	0.0	0.3106	3.06	44.4	17.9	1371
724	0.02	0.3	0.54	8.3	5.78	88.2	0.11	1.7	0.12	1.8	0.00	0.0	0.5902	6.01	57.0	18.5	1306
741	0.00	0.0	1.42	12.9	9.07	82.7	0.31	2.8	0.16	1.5	0.01	0.1	0.3991	3.51	55.5	18.8	880
742	0.04	1.1	0.59	16.6	2.82	79.7	0.10	2.8	0.02	0.6	0.01	0.3	0.5677	5.66	63.9	19.3	1125
655	0.00	0.0	0.67	19.0	2.77	78.5	0.05	1.4	0.04	1.1	0.00	0.0	0.3853	3.90	52.9	18.4	874
656	0.03	0.5	0.96	17.0	4.53	80.2	0.11	1.9	0.04	0.7	0.01	0.2	0.4847	4.39	57.9	17.8	942
657	0.02	0.4	0.83	18.1	3.48	75.8	0.18	3.9	0.10	2.2	0.00	0.0	0.3000	2.82	53.8	18.8	1007
658	0.02	0.3	1.26	17.2	5.83	79.1	0.12	1.6	0.15	2.0	0.01	0.1	0.4104	4.15	58.5	18.0	910
666	0.00	0.0	0.61	11.4	4.55	84.4	0.19	3.5	0.04	0.7	0.00	0.0	0.4502	4.80	62.5	18.8	1094
717	0.03	0.5	1.10	18.4	4.68	78.0	0.14	2.3	0.08	1.3	0.00	0.0	0.4058	4.07	59.8	19.2	1290
718	0.08	1.6	0.86	17.6	3.76	76.7	0.22	4.5	0.05	1.0	0.01	0.2	0.3918	3.80	62.4	18.1	1040
729	0.02	0.3	0.68	11.4	4.89	82.0	0.26	4.4	0.12	2.0	0.01	0.2	0.4488	4.68	62.7	19.0	1180
730	0.00	0.0	0.39	9.3	3.60	86.1	0.15	3.6	0.04	1.0	0.00	0.0	0.2869	2.78	53.3	17.9	1546
509	0.02	0.3	1.33	19.8	5.23	77.7	0.14	2.1	0.03	0.4	0.00	0.0	0.4081	3.66	53.1	18.6	1149
510	0.00	0.0	1.02	15.0	5.47	80.6	0.25	3.7	0.05	0.7	0.00	0.0	0.3028	3.35	59.4	17.6	1284

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529	0.03	0.5	0.77	11.8	5.59	86.0	0.09	1.4	0.05	0.8	0.00	0.0	0.4515	4.47	60.9	18.4	998
530	0.02	0.4	0.98	17.4	4.45	79.5	0.11	2.0	0.06	1.1	0.00	0.0	0.4236	3.94	55.1	18.6	1253
539	0.00	0.0	3.91	59.7	2.49	38.1	0.09	1.4	0.05	0.8	0.00	0.0	0.3537	3.70	56.0	18.5	615
540	0.03	0.6	3.50	73.9	1.16	24.5	0.04	0.8	0.02	0.4	0.02	0.4	0.5230	4.29	54.6	18.1	408
583	0.00	0.0	1.20	10.8	9.43	85.3	0.31	2.8	0.12	1.1	0.00	0.0	0.3691	3.59	61.6	17.7	1180
584	0.00	0.0	0.82	14.1	4.79	82.6	0.09	1.6	0.10	1.7	0.00	0.0	0.3512	3.46	50.4	18.7	1225
601	0.00	0.0	1.14	9.9	9.88	86.5	0.28	2.5	0.11	1.0	0.01	0.1	0.3103	3.17	50.8	18.7	1245
602	0.03	0.0	1.46	21.0	5.19	74.2	0.26	3.7	0.08	1.1	0.00	0.0	0.3887	3.95	53.9	17.9	1309
515	0.02	0.7	0.52	18.0	2.32	80.3	0.03	1.0	0.02	0.7	0.00	0.0	0.4146	3.64	54.0	18.3	925
516	0.02	0.4	0.65	12.4	4.28	81.8	0.17	3.3	0.13	2.5	0.00	0.0	0.3163	3.16	55.5	17.9	1133
535	0.00	0.0	0.92	19.3	3.63	75.9	0.11	2.3	0.11	2.3	0.01	0.2	0.3725	3.62	62.7	18.3	410
536	0.03	0.4	0.95	11.1	7.31	85.4	0.26	3.0	0.04	0.5	0.00	0.0	0.2848	2.97	55.3	18.6	805
547	0.00	0.0	1.15	15.7	5.93	81.2	0.15	2.1	0.07	1.0	0.00	0.0	0.3679	3.60	54.4	18.6	1184
548	0.00	0.0	0.74	17.7	3.31	79.4	0.07	1.7	0.05	1.2	0.00	0.0	0.3834	3.90	60.9	19.7	1426
567	0.00	0.0	0.52	14.7	2.91	82.7	0.06	1.7	0.03	0.9	0.00	0.0	0.3263	3.33	52.1	18.3	1254
568	0.02	0.2	7.10	58.6	4.44	36.6	0.54	4.5	0.03	0.2	0.01	0.1	0.3358	3.05	57.3	18.0	1041
607	0.00	0.0	0.32	9.2	3.04	87.1	0.05	1.4	0.07	2.0	0.01	0.3	0.3661	3.46	56.5	18.9	531
608	0.03	0.7	0.96	22.0	3.16	72.1	0.18	4.1	0.07	1.6	0.01	0.2	0.4000	3.62	51.4	17.5	1063
513	0.00	0.0	0.79	9.6	7.31	88.7	0.08	1.0	0.06	0.7	0.00	0.0	0.3937	3.69	53.8	18.9	1116
514	0.00	0.0	0.73	18.2	3.14	78.1	0.10	2.5	0.05	1.2	0.00	0.0	0.3367	3.64	58.6	18.9	1115
557	0.04	0.6	0.57	8.4	6.06	89.0	0.05	0.7	0.12	1.8	0.01	0.1	0.4002	3.57	52.9	18.8	1141
558	0.02	0.4	0.71	14.3	3.72	75.2	0.10	2.0	0.42	8.5	0.00	0.0	0.4208	4.13	54.0	18.8	204
559	0.00	0.0	1.55	21.3	5.49	75.4	0.14	1.9	0.10	1.4	0.00	0.0	0.3972	4.12	56.9	19.0	940
560	0.00	0.0	0.82	14.0	4.85	82.8	0.13	2.2	0.06	1.0	0.00	0.0	0.3711	3.61	58.5	18.9	1120
563	0.00	0.0	0.29	13.6	1.76	82.2	0.05	2.3	0.04	1.9	0.00	0.0	0.4000	3.69	58.0	18.5	1382
564	0.00	0.0	1.95	42.0	2.34	50.3	0.33	7.1	0.02	0.4	0.01	0.2	0.3135	3.43	58.7	18.6	1389
615	0.05	0.3	6.40	42.6	5.95	39.6	2.47	16.4	0.20	1.3	0.01	0.1	0.2640	2.95	69.4	16.5	462
616	0.02	0.3	0.65	10.5	5.30	86.2	0.10	1.6	0.09	1.5	0.01	0.2	0.3290	3.29	54.2	18.3	1428

Table F-19a. Buckeye Hematology Data

Date	ID	Sex	Dose (mg/L)	Sample Type	WBC (K/uL)	RBC (M/uL)	HGB (g/dL)	HCT (%)	MCV (fL)	MCH (pg)	MCHC (g/dL)	PLT (K/uL)	RDW-SD (fL)	RDW-CV (%)	MPV (fL)
20-Sep-21	1376	M	250	1:7 Pre-Dilution	3.10	9.87	14.4	45.0	45.6	14.6	32.0	1256	21.2	11.8	7.9
20-Sep-21	1417	M	0	1:7 Pre-Dilution	5.54	10.86	15.5	47.6	43.8	14.3	32.6	1344	20.3	11.7	9.0
20-Sep-21	1418	M	0	1:7 Pre-Dilution	2.62	11.00	17.1	52.3	47.5	15.5	32.7	1396	22.9	12.2	8.6
20-Sep-21	1425	M	125	1:7 Pre-Dilution	4.31	10.00	14.5	45.1	45.1	14.5	32.2	1152	22.5	12.8	7.0
20-Sep-21	1426	M	125	1:7 Pre-Dilution	4.30	10.78	15.2	48.0	44.5	14.1	31.7	1284	19.8	11.2	7.6
20-Sep-21	1443	F	1,000	1:7 Pre-Dilution	10.18	10.17	15.7	47.6	46.8	15.4	33.0	864	24.6	13.4	8.6
20-Sep-21	1444	F	1,000	1:7 Pre-Dilution	8.00	11.14	16.8	53.3	47.8	15.1	31.5	858	22.7	12.1	8.6
20-Sep-21	1455	F	0	1:7 Pre-Dilution	2.80	9.76	15.3	46.1	47.2	15.7	33.2	998	22.9	12.3	8.8
20-Sep-21	1456	F	0	1:7 Pre-Dilution	5.25	10.84	16.6	50.5	46.6	15.3	32.9	818	22.0	11.9	8.4
20-Sep-21	1457	F	250	1:7 Pre-Dilution	6.67	9.40	15.4	46.6	49.6	16.4	33.0	819	22.9	11.7	10.1
20-Sep-21	1458	F	250	1:7 Pre-Dilution	2.78	9.68	15.7	47.7	49.3	16.2	32.9	1359	29.3	15.1	8.2
20-Sep-21	1463	F	2,000	1:7 Pre-Dilution	4.75	10.91	16.6	51.6	47.3	15.2	32.2	1140	23.0	12.3	8.2
20-Sep-21	1464	F	2,000	1:7 Pre-Dilution	3.09	10.76	16.4	49.7	46.2	15.2	33.0	975	22.2	12.2	7.8
20-Sep-21	1485	F	500	1:7 Pre-Dilution	7.39	9.19	14.9	45.1	49.1	16.2	33.0	729	25.5	13.2	9.3
20-Sep-21	1486	F	500	1:7 Pre-Dilution	4.51	9.56	15.5	48.3	50.5	16.2	32.1	946	25.3	12.8	10.2
20-Sep-21	1493	F	125	1:7 Pre-Dilution	5.12	10.15	15.9	48.3	47.6	15.7	32.9	489	22.6	12.1	8.7
20-Sep-21	1494	F	125	1:7 Pre-Dilution	4.68	11.86	18.6	57.5	48.5	15.7	32.3	666	23.8	12.1	9.4
21-Sep-21	1377	M	250	1:7 Pre-Dilution	4.18	9.97	15.5	47.9	48.0	15.5	32.4	1278	22.0	11.6	9.5
21-Sep-21	1378	M	250	1:7 Pre-Dilution	2.82	10.07	15.1	45.9	45.6	15.0	32.9	1035	21.6	12.1	7.9
21-Sep-21	1383	M	125	1:7 Pre-Dilution	2.82	9.58	15.1	45.3	47.3	15.8	33.3	1357	21.6	11.6	7.8
21-Sep-21	1384	M	125	1:7 Pre-Dilution	3.85	9.60	15.0	47.0	49.0	15.6	31.9	1190	22.7	11.6	9.0
21-Sep-21	1385	M	0	1:7 Pre-Dilution	1.13	9.83	14.9	45.7	46.5	15.2	32.6	1311	21.4	11.7	8.3
21-Sep-21	1386	M	0	1:7 Pre-Dilution	2.88	9.91	14.6	45.1	45.5	14.7	32.4	1421	21.8	12.0	7.9
21-Sep-21	1441	F	500	1:7 Pre-Dilution	3.36	10.18	15.4	47.8	47.0	15.1	32.2	1035	23.4	12.6	8.8
21-Sep-21	1442	F	500	1:7 Pre-Dilution	4.76	9.24	14.6	43.7	47.3	15.8	33.4	1137	23.7	12.7	8.8
21-Sep-21	1467	F	1,000	1:7 Pre-Dilution	3.00	9.92	16.0	47.9	48.3	16.1	33.4	1166	23.9	12.4	7.6
21-Sep-21	1468	F	1,000	1:7 Pre-Dilution	3.11	9.87	15.3	47.0	47.6	15.5	32.6	979	23.0	12.6	8.7
21-Sep-21	1469	F	125	1:7 Pre-Dilution	4.62	10.45	17.2	52.3	50.0	16.5	32.9	1236	25.6	12.7	9.4
21-Sep-21	1470	F	125	1:7 Pre-Dilution	2.22	10.86	17.2	52.4	48.3	15.8	32.8	1127	22.8	11.7	8.8
21-Sep-21	1473	F	2,000	1:7 Pre-Dilution	2.71	10.40	16.2	50.5	48.6	15.6	32.1	461	24.6	12.6	8.7

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21-Sep-21	1774	F	2,000	1:7 Pre-Dilution	2.52	8.71	14.2	42.3	48.6	16.3	33.6	1023	26.7	13.8	7.1
21-Sep-21	1487	F	0	1:7 Pre-Dilution	6.23	10.91	16.6	50.2	46.0	15.2	33.1	957	23.6	12.7	6.7
21-Sep-21	1488	F	0	1:7 Pre-Dilution	4.40	10.93	17.7	53.8	49.2	16.2	32.9	467	24.0	12.1	8.9
21-Sep-21	1497	F	250	1:7 Pre-Dilution	1.70	10.06	15.5	49.0	48.7	15.4	31.6	1237	26.2	13.7	8.9
21-Sep-21	1498	F	250	1:7 Pre-Dilution	1.19	9.87	15.3	46.2	46.8	15.5	33.1	973	23.8	12.9	8.8
22-Sep-21	1391	M	0	1:7 Pre-Dilution	2.19	10.74	16.7	51.0	47.5	15.5	32.7	1111	23.2	12.2	7.8
22-Sep-21	1392	M	0	1:7 Pre-Dilution	2.45	10.61	16.2	50.8	47.9	15.3	31.9	667	22.3	11.7	8.9
22-Sep-21	1401	M	250	1:7 Pre-Dilution	2.27	9.92	15.3	49.1	49.5	15.4	31.2	599	22.9	11.7	9.7
22-Sep-21	1402	M	250	1:7 Pre-Dilution	2.52	9.24	14.7	45.0	48.7	15.9	32.7	805	22.0	11.3	9.3
22-Sep-21	1433	M	125	1:7 Pre-Dilution	1.48	9.72	15.2	45.9	47.2	15.6	33.1	1190	21.6	11.6	8.2
22-Sep-21	1434	M	125	1:7 Pre-Dilution	2.03	10.08	14.6	45.7	45.3	14.5	31.9	1040	23.3	13.0	8.3
22-Sep-21	1449	F	500	1:7 Pre-Dilution	7.36	10.68	15.5	47.9	44.9	14.5	32.4	314	22.7	12.9	9.3
22-Sep-21	1450	F	500	1:7 Pre-Dilution	9.21	10.34	16.6	50.5	48.8	16.1	32.9	630	23.5	12.0	9.1
22-Sep-21	1451	F	250	1:7 Pre-Dilution	4.48	11.37	17.4	53.4	47.0	15.3	32.6	355	24.3	13.1	8.4
22-Sep-21	1452	F	250	1:7 Pre-Dilution	2.83	10.13	16.3	49.3	48.7	16.1	33.1	70	24.5	12.6	8.0
22-Sep-21	1465	F	1,000	1:7 Pre-Dilution	5.72	9.99	15.8	47.4	47.4	15.8	33.3	1107	21.9	11.8	8.2
22-Sep-21	1466	F	1,000	1:7 Pre-Dilution	2.70	10.34	16.5	49.8	48.2	16.0	33.1	753	24.2	12.6	8.5
22-Sep-21	1471	F	125	1:7 Pre-Dilution	2.22	9.90	15.6	46.3	46.8	15.8	33.7	1029	22.9	12.4	9.8
22-Sep-21	1472	F	125	1:7 Pre-Dilution	1.58	9.84	15.3	45.9	46.6	15.5	33.3	365	23.0	12.5	8.9
22-Sep-21	1479	F	2,000	1:7 Pre-Dilution	4.39	10.78	16.7	50.0	46.4	15.5	33.4	972	22.6	12.3	8.8
22-Sep-21	1480	F	2,000	1:7 Pre-Dilution	6.16	10.77	16.6	49.5	46.0	15.4	33.5	1045	23.3	12.6	7.8
22-Sep-21	1491	F	0	1:7 Pre-Dilution	3.88	11.22	17.0	49.8	44.4	15.2	34.1	1397	21.7	12.4	7.6
22-Sep-21	1492	F	0	1:7 Pre-Dilution	1.99	9.66	14.7	45.5	47.1	15.2	32.3	1153	23.8	12.8	8.6
23-Sep-21	1399	M	125	1:7 Pre-Dilution	6.59	10.74	16.5	52.3	48.7	15.4	31.5	522	23.1	11.7	8.6
23-Sep-21	1400	M	125	1:7 Pre-Dilution	1.26	10.88	16.1	50.2	46.1	14.8	32.1	1124	23.3	12.6	8.1
23-Sep-21	1411	M	250	1:7 Pre-Dilution	4.92	10.85	15.7	50.9	46.9	14.5	30.8	1138	24.3	12.9	8.1
23-Sep-21	1412	M	250	1:7 Pre-Dilution	2.90	11.20	17.1	51.8	46.3	15.3	33.0	1225	22.5	12.2	8.7
23-Sep-21	1419	M	0	1:7 Pre-Dilution	3.76	9.40	14.4	44.2	47.0	15.3	32.6	1245	21.9	11.8	8.6
23-Sep-21	1420	M	0	1:7 Pre-Dilution	2.04	10.45	15.7	47.7	45.6	15.0	32.9	1261	21.4	12.0	8.8
23-Sep-21	1447	F	0	1:7 Pre-Dilution	5.12	10.57	16.3	49.1	46.5	15.4	33.2	604	22.7	12.3	9.0
23-Sep-21	1448	F	0	1:7 Pre-Dilution	5.16	10.52	16.3	49.9	47.4	15.5	32.7	975	21.1	11.2	8.6
23-Sep-21	1453	F	2,000	1:7 Pre-Dilution	5.19	10.37	16.3	49.9	48.1	15.7	32.7	989	22.6	11.8	8.4
23-Sep-21	1454	F	2,000	1:7 Pre-Dilution	1.54	6.66	10.5	32.1	48.2	15.8	32.7	421	22.3	11.7	9.4
23-Sep-21	1461	F	500	1:7 Pre-Dilution	2.66	9.89	15.5	47.2	47.7	15.7	32.8	531	22.0	11.6	9.6

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23-Sep-21	1462	F	500	1:7 Pre-Dilution	3.45	10.60	16.0	49.2	46.4	15.1	32.5	1054	23.5	12.6	8.1
23-Sep-21	1477	F	125	1:7 Pre-Dilution	2.38	10.22	14.7	45.7	44.7	14.4	32.2	983	21.6	12.1	9.1
23-Sep-21	1478	F	125	1:7 Pre-Dilution	1.73	9.82	15.7	46.3	47.1	16.0	33.9	74	22.7	12.3	8.1
23-Sep-21	1483	F	250	1:7 Pre-Dilution	1.50	9.93	14.9	46.9	47.2	15.0	31.8	1113	24.3	13.4	8.9
23-Sep-21	1484	F	250	1:7 Pre-Dilution	2.68	9.91	16.6	50.1	50.6	16.8	33.1	779	27.9	13.8	9.2
23-Sep-21	1489	F	1,000	1:7 Pre-Dilution	1.31	10.20	15.8	48.0	47.1	15.5	32.9	1191	22.4	12.0	8.3
23-Sep-21	1490	F	1,000	1:7 Pre-Dilution	3.03	10.05	15.7	47.8	47.6	15.6	32.8	1249	22.4	12.0	8.5
24-Sep-21	1387	M	0	1:7 Pre-Dilution	3.97	10.80	15.5	47.8	44.3	14.4	32.4	1235	21.6	12.3	8.5
24-Sep-21	1388	M	0	1:7 Pre-Dilution	1.84	10.17	15.3	46.4	45.6	15.0	33.0	682	23.3	12.9	8.9
24-Sep-21	1397	M	125	1:7 Pre-Dilution	2.18	11.38	16.7	50.7	44.6	14.7	32.9	1003	22.1	12.5	8.4
24-Sep-21	1398	M	125	1:7 Pre-Dilution	1.25	9.99	16.3	50.2	50.3	16.3	32.5	661	24.3	12.4	8.7
24-Sep-21	1439	M	250	1:7 Pre-Dilution	3.71	10.62	15.9	49.5	46.6	15.0	32.1	1031	23.0	12.4	8.2
24-Sep-21	1440	M	250	1:7 Pre-Dilution	0.87	9.26	14.2	43.9	47.4	15.3	32.2	686	22.0	11.7	8.9
24-Sep-21	1445	F	125	1:7 Pre-Dilution	2.11	8.99	14.0	41.1	45.7	15.6	34.1	55	23.7	12.8	8.3
24-Sep-21	1446	F	125	1:7 Pre-Dilution	2.76	11.44	17.4	51.7	45.2	15.2	33.7	1010	22.1	12.3	6.7
24-Sep-21	1459	F	1,000	1:7 Pre-Dilution	4.33	9.63	15.5	47.8	49.6	16.1	32.4	891	25.8	12.9	9.8
24-Sep-21	1460	F	1,000	1:7 Pre-Dilution	3.44	10.02	15.4	46.6	46.5	15.4	33.0	441	24.6	13.2	9.4
24-Sep-21	1475	F	2,000	1:7 Pre-Dilution	1.86	10.17	15.9	48.5	47.7	15.6	32.8	1133	22.3	11.8	8.7
24-Sep-21	1476	F	2,000	1:7 Pre-Dilution	1.50	10.38	16.2	49.0	47.2	15.6	33.1	243	22.6	12.0	7.9
24-Sep-21	1481	F	500	1:7 Pre-Dilution	3.15	8.95	14.9	45.6	50.9	16.6	32.7	1249	26.7	13.1	7.7
24-Sep-21	1482	F	500	1:7 Pre-Dilution	1.68	10.27	16.8	50.8	49.5	16.4	33.1	270	23.6	12.1	9.2
24-Sep-21	1495	F	0	1:7 Pre-Dilution	4.14	8.82	14.5	45.0	51.0	16.4	32.2	643	27.5	13.7	9.6
24-Sep-21	1496	F	0	1:7 Pre-Dilution	3.24	9.26	14.4	45.1	48.7	15.6	31.9	770	24.4	12.5	9.9
24-Sep-21	1499	F	250	1:7 Pre-Dilution	2.12	9.65	15.3	47.3	49.0	15.9	32.3	1065	26.2	13.5	9.7
24-Sep-21	1500	F	250	1:7 Pre-Dilution	2.69	10.80	16.6	51.9	48.1	15.4	32.0	1119	23.8	12.2	9.3

Table F-19b. Buckeye Hematology Data continued

ID	NRBC		NEUT		LYMPH		MONO		EO		BASO		RET		IRF	RET-He	PLT-F
	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(%)	(pg)	(K/uL)
1375	0.00	0.0	0.29	7.9	3.26	88.8	0.07	1.9	0.05	1.4	0.00	0.00	0.3460	3.70	56.5	17.9	1003
1376	0.02	0.6	0.27	8.7	2.71	87.4	0.09	2.9	0.03	1.0	0.00	0.00	0.3721	3.77	55.1	18.1	1256
1417	0.00	0.0	0.74	13.3	4.64	83.8	0.09	1.6	0.07	1.3	0.00	0.00	0.4094	3.77	45.7	17.5	1344
1418	0.00	0.0	0.40	15.3	2.16	82.4	0.04	1.5	0.02	0.8	0.00	0.00	0.4092	3.72	55.4	19.5	1396
1425	0.00	0.0	0.53	12.2	3.64	84.5	0.11	2.6	0.03	0.7	0.00	0.00	0.4240	4.24	56.1	18.0	1152
1426	0.00	0.0	0.36	8.3	3.78	87.9	0.11	2.6	0.05	1.2	0.00	0.00	0.3126	2.90	48.9	17.0	1284
1443	0.02	0.2	1.42	13.9	8.57	84.2	0.13	1.3	0.05	0.5	0.01	0.10	0.3244	3.19	57.1	19.0	864
1444	0.00	0.0	0.55	6.9	7.11	88.9	0.21	2.6	0.12	1.5	0.01	0.10	0.5147	4.62	57.4	19.3	858
1455	0.02	0.7	0.54	19.2	2.13	76.1	0.08	2.9	0.05	1.8	0.00	0.00	0.4792	4.91	54.0	18.6	998
1456	0.00	0.0	0.68	12.9	4.37	83.2	0.14	2.7	0.05	1.0	0.01	0.20	0.3079	2.84	51.9	18.9	818
1457	0.02	0.3	0.39	5.8	6.10	91.5	0.14	2.1	0.04	0.6	0.00	0.00	0.3450	3.67	64.9	20.1	819
1458	0.03	1.1	0.35	12.6	2.18	78.4	0.19	6.8	0.06	2.2	0.00	0.00	0.4879	5.04	59.7	20.1	1359
1463	0.02	0.4	0.47	9.9	4.08	85.9	0.14	2.9	0.06	1.3	0.00	0.00	0.4931	4.52	62.1	18.9	1140
1464	0.04	1.3	0.33	10.7	2.63	85.1	0.09	2.9	0.04	1.3	0.00	0.00	0.5466	5.08	60.9	18.9	975
1485	0.00	0.0	0.80	10.7	6.16	83.4	0.33	4.5	0.10	1.4	0.00	0.00	0.3740	4.07	57.8	20.2	729
1486	0.00	0.0	0.55	12.2	3.69	81.8	0.23	5.1	0.04	0.9	0.00	0.00	0.5889	6.16	65.5	19.4	946
1493	0.00	0.0	0.55	10.7	4.01	78.3	0.49	9.6	0.06	1.2	0.01	0.20	0.3207	3.16	59.1	19.3	489
1494	0.03	0.6	0.36	7.6	4.07	87.0	0.21	4.5	0.04	0.9	0.00	0.00	0.3866	3.26	58.1	19.0	666
1377	0.03	0.7	0.53	12.7	3.57	85.4	0.04	1.0	0.03	0.7	0.01	0.20	0.3789	3.80	59.2	19.0	1278
1378	0.00	0.0	0.88	31.3	1.73	61.3	0.13	4.6	0.08	2.8	0.00	0.00	0.3686	3.66	53.3	18.4	1035
1383	0.03	1.1	0.60	21.3	2.13	75.5	0.06	2.1	0.03	1.1	0.00	0.00	0.3775	3.94	54.0	19.2	1357
1384	0.00	0.0	0.45	11.8	3.27	84.9	0.09	2.3	0.04	1.0	0.00	0.00	0.3773	3.93	56.6	18.8	1190
1385	0.00	0.0	0.34	30.0	0.75	66.4	0.02	1.8	0.02	1.8	0.00	0.00	0.3627	3.69	58.8	18.7	1311
1386	0.00	0.0	0.64	22.2	1.96	68.1	0.16	5.6	0.11	3.8	0.01	0.30	0.3310	3.34	50.7	18.0	1421
1441	0.02	0.6	0.39	11.6	2.75	81.8	0.15	4.5	0.07	2.1	0.00	0.00	0.4428	4.35	61.1	19.2	1035
1442	0.02	0.4	0.47	9.9	4.16	87.4	0.09	1.9	0.04	0.8	0.00	0.00	0.2633	2.85	56.0	18.9	1137
1467	0.00	0.0	0.48	16.0	2.43	81.0	0.06	2.0	0.02	0.7	0.01	0.30	0.3383	3.41	64.7	20.0	1166
1468	0.00	0.0	0.68	21.9	2.29	73.6	0.10	3.2	0.04	1.3	0.00	0.00	0.6267	6.35	64.3	19.7	979
1469	0.00	0.0	0.58	12.6	3.90	84.4	0.11	2.4	0.03	0.6	0.00	0.00	0.2560	2.45	42.0	19.7	1236
1470	0.02	0.9	0.32	14.3	1.80	81.1	0.05	2.3	0.03	1.4	0.02	0.90	0.3421	3.14	53.8	19.1	1127

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1473	0.00	0.0	0.28	10.3	2.33	86.0	0.07	2.6	0.03	1.1	0.00	0.00	0.4087	3.93	59.1	19.1	461
1774	0.00	0.0	0.35	13.8	1.98	78.6	0.12	4.8	0.07	2.8	0.00	0.00	0.3989	4.58	62.1	20.1	1023
1487	0.04	0.6	0.59	9.4	5.38	86.4	0.17	2.7	0.08	1.3	0.01	0.20	0.3448	3.16	56.0	18.0	957
1488	0.00	0.0	0.69	15.7	3.50	79.5	0.14	3.2	0.07	1.6	0.00	0.00	0.4492	4.11	60.6	19.3	467
1497	0.02	1.2	0.17	9.9	1.45	85.3	0.04	2.4	0.04	2.4	0.00	0.00	0.5664	5.63	62.1	19.1	1237
1498	0.03	2.5	0.16	13.5	0.95	79.8	0.04	3.4	0.03	2.5	0.01	0.80	0.3997	4.05	64.9	18.8	973
1391	0.02	0.9	0.32	14.5	1.74	79.5	0.08	3.7	0.04	1.8	0.01	0.50	0.3963	3.69	54.0	19.0	1111
1392	0.00	0.0	0.42	17.1	1.94	79.2	0.07	2.9	0.02	0.8	0.00	0.00	0.4265	4.02	60.0	18.7	667
1401	0.02	0.9	0.34	15.0	1.84	81.1	0.06	2.6	0.02	0.9	0.01	0.40	0.3254	3.28	57.7	18.7	599
1402	0.05	2.0	0.37	14.7	2.09	82.9	0.04	1.6	0.02	0.8	0.00	0.00	0.3945	4.27	57.2	19.5	805
1433	0.00	0.0	0.35	23.6	1.10	74.3	0.02	1.4	0.01	0.7	0.00	0.00	0.3742	3.85	55.1	19.1	1190
1434	0.02	1.0	0.30	14.8	1.64	80.8	0.07	3.4	0.02	1.0	0.00	0.00	0.3528	3.50	50.8	17.6	1040
1449	0.04	0.5	0.50	6.7	6.63	90.1	0.13	1.8	0.10	1.4	0.00	0.00	0.4603	4.31	64.1	18.2	314
1450	0.00	0.0	0.72	7.9	8.04	87.3	0.29	3.1	0.15	1.6	0.01	0.10	0.2202	2.13	56.0	18.9	630
1451	0.04	0.9	0.32	7.1	4.04	90.2	0.08	1.8	0.03	0.7	0.01	0.20	0.4491	3.95	60.5	18.8	355
1452	0.00	0.0	0.20	7.1	2.22	78.4	0.03	1.1	0.38	13.4	0.00	0.00	0.4751	4.69	62.2	19.5	70
1465	0.03	0.5	0.43	7.5	5.08	88.8	0.16	2.8	0.05	0.9	0.00	0.00	0.4675	4.68	62.3	20.0	1107
1466	0.00	0.0	0.25	9.1	2.31	85.6	0.10	3.7	0.04	1.5	0.00	0.00	0.3464	3.35	58.5	19.8	753
1471	0.02	0.9	0.39	17.5	1.75	78.8	0.05	2.3	0.03	1.4	0.00	0.00	0.2950	2.98	46.7	19.4	1029
1472	0.00	0.0	0.14	8.9	1.37	86.7	0.02	1.3	0.04	2.5	0.01	0.60	0.3060	3.11	55.9	19.3	365
1479	0.02	0.5	0.23	5.2	4.03	91.8	0.11	2.5	0.02	0.5	0.00	0.00	0.3180	2.95	52.9	18.9	972
1480	0.02	0.3	0.48	7.8	5.50	89.3	0.13	2.1	0.05	0.8	0.00	0.00	0.4825	4.48	51.5	19.1	1045
1491	0.00	0.0	0.55	14.2	3.22	83.0	0.06	1.5	0.05	1.3	0.00	0.00	0.3489	3.11	51.8	18.4	1397
1492	0.02	1.0	0.48	24.2	1.29	64.8	0.19	9.5	0.02	1.0	0.01	0.50	0.5197	5.38	62.6	17.9	1153
1399	0.00	0.0	0.67	10.2	5.70	86.5	0.18	2.7	0.04	0.6	0.00	0.00	0.4017	3.74	57.9	18.6	522
1400	0.02	1.6	0.18	14.2	1.02	81.0	0.05	4.0	0.01	0.8	0.00	0.00	0.4243	3.90	47.3	18.1	1124
1411	0.00	0.0	0.71	14.5	4.04	82.1	0.15	3.0	0.02	0.4	0.00	0.00	0.3895	3.59	57.6	17.9	1138
1412	0.00	0.0	0.49	16.9	2.28	78.6	0.08	2.8	0.03	1.0	0.02	0.70	0.3550	3.17	52.3	18.5	1225
1419	0.00	0.0	0.56	14.9	3.00	79.8	0.15	4.0	0.05	1.3	0.00	0.00	0.3732	3.97	62.5	18.4	1245
1420	0.02	1.0	0.31	15.1	1.67	81.9	0.03	1.5	0.03	1.5	0.00	0.00	0.3605	3.45	59.9	18.6	1261
1447	0.02	0.4	0.57	11.1	4.49	87.7	0.04	0.8	0.02	0.4	0.00	0.00	0.3710	3.51	55.2	18.8	604
1448	0.04	0.8	0.75	14.6	4.29	83.1	0.11	2.1	0.01	0.2	0.00	0.00	0.4113	3.91	61.1	18.7	975
1453	0.00	0.0	0.53	10.2	4.39	84.6	0.21	4.0	0.06	1.2	0.00	0.00	0.3878	3.74	55.4	19.2	989
1454	0.00	0.0	0.09	5.8	1.37	89.0	0.04	2.6	0.04	2.6	0.00	0.00	0.2431	3.65	60.7	19.2	421

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1461	0.00	0.0	0.47	17.6	2.08	78.2	0.04	1.5	0.06	2.3	0.01	0.40	0.2651	2.68	56.3	19.0	531
1462	0.00	0.0	0.47	13.5	2.69	78.0	0.14	4.1	0.14	4.1	0.01	0.30	0.2862	2.70	37.6	18.2	1054
1477	0.00	0.0	0.19	8.1	2.10	88.2	0.06	2.5	0.02	0.8	0.01	0.40	0.2565	2.51	51.2	18.5	983
1478	0.00	0.0	0.22	12.7	0.84	48.6	0.12	6.9	0.55	31.8	0.00	0.00	0.3015	3.07	54.6	19.7	74
1483	0.00	0.0	0.12	8.0	1.31	87.3	0.06	4.0	0.01	0.7	0.00	0.00	0.5809	5.85	63.3	19.1	1113
1484	0.03	1.1	0.30	11.2	2.24	83.6	0.08	3.0	0.06	2.2	0.00	0.00	0.4172	4.21	62.3	20.7	779
1489	0.02	1.5	0.20	15.3	1.00	76.3	0.07	5.3	0.04	3.1	0.00	0.00	0.3876	3.80	53.7	19.0	1191
1490	0.00	0.0	0.29	9.6	2.60	85.8	0.08	2.6	0.05	1.7	0.01	0.30	0.2854	2.84	60.5	19.1	1249
1387	0.00	0.0	0.54	13.5	3.29	82.9	0.07	1.8	0.07	1.8	0.00	0.00	0.3456	3.20	48.8	18.1	1235
1388	0.00	0.0	0.23	12.5	1.54	83.7	0.04	2.2	0.03	1.6	0.00	0.00	0.4068	4.00	59.1	18.6	682
1397	0.00	0.0	0.41	18.8	1.70	78.0	0.03	1.4	0.04	1.8	0.00	0.00	0.3516	3.09	49.0	18.2	1003
1398	0.00	0.0	0.17	13.6	1.04	83.2	0.03	2.4	0.01	0.8	0.00	0.00	0.4166	4.17	60.5	20.4	661
1439	0.00	0.0	0.42	11.3	3.13	84.4	0.13	3.5	0.03	0.8	0.00	0.00	0.3982	3.75	57.7	18.2	1031
1440	0.00	0.0	0.18	20.7	0.64	73.6	0.02	2.3	0.03	3.4	0.00	0.00	0.4195	4.53	57.9	18.8	686
1445	0.00	0.0	0.10	4.7	1.78	84.4	0.06	2.8	0.17	8.1	0.00	0.00	0.3776	4.20	56.8	18.8	55
1446	0.02	0.7	0.23	8.3	2.46	89.1	0.05	1.8	0.01	0.4	0.01	0.40	0.3615	3.16	54.0	19.0	1010
1459	0.00	0.0	0.66	15.2	3.32	76.7	0.25	5.8	0.09	2.1	0.01	0.20	0.3053	3.17	49.0	19.2	891
1460	0.02	0.6	0.51	14.8	2.71	78.8	0.12	3.5	0.10	2.9	0.00	0.00	0.2896	2.89	46.8	18.4	441
1475	0.00	0.0	0.13	7.0	1.62	87.1	0.08	4.3	0.03	1.6	0.00	0.00	0.3580	3.52	62.1	19.6	1133
1476	0.00	0.0	0.19	12.6	1.08	72.0	0.03	2.0	0.19	12.7	0.01	0.70	0.3052	2.94	55.4	19.1	243
1481	0.03	1.0	0.44	14.0	2.58	81.9	0.11	3.5	0.02	0.6	0.00	0.00	0.2354	2.63	62.6	19.2	1249
1482	0.04	2.4	0.24	14.3	1.16	69.0	0.05	3.0	0.22	13.1	0.01	0.60	0.4601	4.48	56.7	19.7	270
1495	0.02	0.5	0.61	14.8	3.18	76.8	0.28	6.8	0.06	1.4	0.01	0.20	0.5204	5.90	62.4	20.4	643
1496	0.02	0.6	0.35	10.9	2.82	87.0	0.05	1.5	0.02	0.6	0.00	0.00	0.3593	3.88	64.6	19.6	770
1499	0.00	0.0	0.22	10.4	1.78	84.0	0.09	4.2	0.03	1.4	0.00	0.00	0.5443	5.64	61.0	20.0	1065
1500	0.00	0.0	0.33	12.2	2.24	83.3	0.08	3.0	0.04	1.5	0.00	0.00	0.2668	2.47	36.8	18.4	1119

Table F-20a. ECOPOL A Hematology Data

Date	ID	Sex	Dose (mg/L)	Sample Type	WBC (K/uL)	RBC (M/uL)	HGB (g/dL)	HCT (%)	MCV (fL)	MCH (pg)	MCHC (g/dL)	PLT (K/uL)	RDW-SD (fL)	RDW-CV (%)	MPV (fL)
28-Jun-21	771	M	250	1:7 Pre-Dilution	8.92	11.21	16.3	50.8	45.3	14.5	32.1	1102	21.3	11.9	7.0
28-Jun-21	772	M	250	1:7 Pre-Dilution	6.83	10.95	16.4	52.2	47.7	15.0	31.4	1097	23.5	12.5	8.0
28-Jun-21	821	M	0	1:7 Pre-Dilution	4.60	10.06	15.6	49.2	48.9	15.5	31.7	974	24.2	12.4	9.0
28-Jun-21	822	M	0	1:7 Pre-Dilution	6.72	9.95	14.8	47.0	47.2	14.9	31.5	1208	23.7	12.9	8.1
28-Jun-21	837	M	125	1:7 Pre-Dilution	4.90	10.52	15.6	49.6	47.1	14.8	31.5	1027	22.7	12.1	7.4
28-Jun-21	838	M	125	1:7 Pre-Dilution	8.94	11.75	17.1	55.0	46.8	14.6	31.1	896	23.0	12.5	8.5
28-Jun-21	1019	F	125	1:7 Pre-Dilution	5.20	10.32	15.7	50.0	48.4	15.2	31.4	1214	28.9	15.0	8.2
28-Jun-21	1020	F	125	1:7 Pre-Dilution	4.90	9.90	14.9	48.5	49.0	15.1	30.7	813	26.2	13.4	8.8
28-Jun-21	1021	F	1,000	1:7 Pre-Dilution	6.90	10.66	16.4	51.3	48.1	15.4	32.0	1178	25.6	13.3	8.4
28-Jun-21	1022	F	1,000	1:7 Pre-Dilution	3.42	11.57	16.4	51.2	44.3	14.2	32.0	1540	20.4	11.6	8.1
28-Jun-21	1023	F	250	1:7 Pre-Dilution	4.05	7.08	11.3	35.6	50.3	16.0	31.7	48	24.9	12.4	8.9
28-Jun-21	1024	F	250	1:7 Pre-Dilution	9.77	10.09	15.3	48.8	48.4	15.2	31.4	818	25.4	13.2	8.6
28-Jun-21	1053	F	2,000	1:7 Pre-Dilution	6.55	8.97	14.4	45.0	50.2	16.1	32.0	910	25.2	12.7	8.5
28-Jun-21	1054	F	2,000	1:7 Pre-Dilution	5.22	10.23	15.6	48.3	47.2	15.2	32.3	1132	24.3	13.0	8.5
28-Jun-21	1059	F	0	1:7 Pre-Dilution	6.48	9.81	15.4	47.6	48.5	15.7	32.4	742	24.1	12.4	9.5
28-Jun-21	1060	F	0	1:7 Pre-Dilution	5.99	9.97	15.7	48.0	48.1	15.7	32.7	1125	24.4	12.7	8.2
28-Jun-21	1089	F	500	1:7 Pre-Dilution	6.44	8.53	13.3	41.7	48.9	15.6	31.9	1114	27.9	14.2	8.3
28-Jun-21	1090	F	500	1:7 Pre-Dilution	6.00	10.25	15.2	47.1	46.0	14.8	32.3	1004	24.6	13.4	8.2
29-Jun-21	815	M	0	1:7 Pre-Dilution	6.08	11.33	16.4	50.7	44.7	14.5	32.3	1083	21.7	12.2	7.4
29-Jun-21	816	M	0	1:7 Pre-Dilution	3.31	8.67	13.4	42.4	48.9	15.5	31.6	810	23.3	11.9	8.7
29-Jun-21	851	M	250	1:7 Pre-Dilution	5.09	9.53	14.4	46.0	48.3	15.1	31.3	1323	23.2	11.9	8.0
29-Jun-21	852	M	250	1:7 Pre-Dilution	2.08	10.46	16.0	50.0	47.8	15.3	32.0	985	23.1	12.3	7.6
29-Jun-21	879	M	125	1:7 Pre-Dilution	7.20	9.47	13.9	44.1	46.6	14.7	31.5	1083	22.9	12.5	8.5
29-Jun-21	880	M	125	1:7 Pre-Dilution	9.07	9.80	14.3	45.8	46.7	14.6	31.2	955	22.1	12.0	8.5
29-Jun-21	1013	F	125	1:7 Pre-Dilution	8.24	11.18	16.7	54.0	48.3	14.9	30.9	700	25.4	13.1	8.4
29-Jun-21	1014	F	125	1:7 Pre-Dilution	8.97	9.01	14.5	46.8	51.9	16.1	31.0	1179	29.0	14.0	8.8
29-Jun-21	1030	F	250	1:7 Pre-Dilution	4.00	11.32	17.0	52.9	46.7	15.0	32.1	486	22.1	11.9	9.4
29-Jun-21	1031	F	0	1:7 Pre-Dilution	6.65	10.97	17.5	54.4	49.6	16.0	32.2	505	23.7	12.0	9.4

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29-Jun-21	1032	F	0	1:7 Pre-Dilution	6.24	9.94	15.7	49.8	50.1	15.8	31.5	1068	23.9	12.2	9.3
29-Jun-21	1093	F	1,000	1:7 Pre-Dilution	6.04	9.5	15.7	48.0	50.4	16.5	33	1101.0	23.8	12.0	8.10
29-Jun-21	1094	F	1,000	1:7 Pre-Dilution	5.65	9.35	13.9	44.5	47.6	14.9	31.2	910	23.3	12.3	8.4
29-Jun-21	1103	F	2,000	1:7 Pre-Dilution	9.52	10.10	16.1	49.2	48.7	15.9	32.7	1135	24.2	12.7	8.8
29-Jun-21	1104	F	2,000	1:7 Pre-Dilution	7.00	11.10	17.3	53.7	48.4	15.6	32.2	868	23.5	12.0	8.4
29-Jun-21	1105	F	500	1:7 Pre-Dilution	6.28	10.66	16.5	51.3	48.1	15.5	32.2	1012	25.3	13.3	8.7
29-Jun-21	1106	F	500	1:7 Pre-Dilution	8.72	9.25	14.7	46.1	49.8	15.9	31.9	1222	25.4	12.8	9.0
30-Jun-21	775	M	250	1:7 Pre-Dilution	9.95	9.73	14.9	47.5	48.8	15.3	31.4	895	26.1	13.5	8.1
30-Jun-21	776	M	250	1:7 Pre-Dilution	5.05	9.77	15.0	48.3	49.4	15.4	31.1	919	25.5	13.1	9.0
30-Jun-21	779	M	125	1:7 Pre-Dilution	3.23	9.65	15.1	48.0	49.7	15.6	31.5	272	25.5	12.9	8.5
30-Jun-21	780	M	125	1:7 Pre-Dilution	8.35	10.13	14.7	46.1	45.5	14.5	31.9	1589	21.3	11.9	7.7
30-Jun-21	825	M	0	1:7 Pre-Dilution	5.96	10.74	15.8	50.8	47.3	14.7	31.1	1161	22.6	12.0	7.8
30-Jun-21	826	M	0	1:7 Pre-Dilution	3.71	9.88	15.4	47.4	48.0	15.6	32.5	1138	23.6	12.4	8.0
30-Jun-21	1007	F	0	1:7 Pre-Dilution	7.49	11.28	16.7	52.7	46.7	14.8	31.7	632	22.7	12.1	8.8
30-Jun-21	1008	F	0	1:7 Pre-Dilution	5.63	10.54	16.7	51.0	48.4	15.8	32.7	829	24.8	12.8	8.2
30-Jun-21	1009	F	500	1:7 Pre-Dilution	5.67	10.49	16.4	51.5	49.1	15.6	31.8	759	25.5	13.2	7.1
30-Jun-21	1010	F	500	1:7 Pre-Dilution	8.20	10.49	16.0	51.1	48.7	15.3	31.3	1087	24.9	12.8	8.4
30-Jun-21	1011	F	125	1:7 Pre-Dilution	9.52	10.48	15.9	50.0	47.7	15.2	31.8	628	25.0	13.3	8.2
30-Jun-21	1012	F	125	1:7 Pre-Dilution	7.72	9.38	15.1	47.2	50.3	16.1	32.0	742	26.3	13.2	9.0
30-Jun-21	1015	F	250	1:7 Pre-Dilution	8.19	9.62	15.4	47.8	79.7	16.0	32.2	1215	24.2	12.3	8.0
30-Jun-21	1016	F	250	1:7 Pre-Dilution	5.08	10.67	16.5	49.9	46.8	15.5	33.1	1135	21.7	11.7	8.5
30-Jun-21	1057	F	2,000	1:7 Pre-Dilution	8.69	11.16	16.8	51.4	46.1	15.1	32.7	1047	22.4	12.1	8.0
30-Jun-21	1058	F	2,000	1:7 Pre-Dilution	5.81	10.26	15.6	48.1	46.9	15.2	32.4	1189	23.5	12.7	7.8
30-Jun-21	1063	F	1,000	1:7 Pre-Dilution	7.40	10.29	16.5	52.8	51.3	16.0	31.3	199	27.0	13.1	8.3
30-Jun-21	1064	F	1,000	1:7 Pre-Dilution	8.59	10.07	16.3	50.1	49.8	16.2	32.5	1430	22.0	11.1	7.7
1-Jul-21	806	M	125	1:7 Pre-Dilution	7.19	10.00	15.3	49.4	49.4	15.3	31.0	800	22.6	11.6	8.3
1-Jul-21	873	M	0	1:7 Pre-Dilution	5.29	10.13	15.2	48.8	48.2	15.0	31.1	1063	24.1	12.5	7.9
1-Jul-21	874	M	0	1:7 Pre-Dilution	8.96	10.53	14.9	47.4	45.0	14.2	31.4	1260	20.9	11.7	6.9
1-Jul-21	875	M	250	1:7 Pre-Dilution	3.06	9.81	14.6	46.1	47.0	14.9	31.7	1483	22.8	12.3	7.1
1-Jul-21	876	M	250	1:7 Pre-Dilution	5.18	9.74	14.6	44.5	45.7	15.0	32.8	1537	23.7	13.1	7.6
1-Jul-21	1047	F	2,000	1:7 Pre-Dilution	4.19	10.82	16.2	51.1	47.2	15.0	31.7	1002	23.2	12.4	7.3
1-Jul-21	1048	F	2,000	1:7 Pre-Dilution	4.20	10.04	16.1	49.1	48.9	16.0	32.8	1192	24.9	12.8	7.9
1-Jul-21	1049	F	500	1:7 Pre-Dilution	7.58	9.61	14.9	46.5	48.4	15.5	32.0	1185	26.7	13.7	7.9
1-Jul-21	1050	F	500	1:7 Pre-Dilution	4.81	8.88	13.8	44.1	49.7	15.5	31.3	906	26.4	13.6	8.4

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1-Jul-21	1065	F	1,000	1:7 Pre-Dilution	9.24	10.33	14.9	46.6	45.1	14.4	32.0	1313	23.5	13.2	8.2
1-Jul-21	1066	F	1,000	1:7 Pre-Dilution	7.41	9.09	15.0	47.4	52.1	16.5	31.6	1246	26.7	12.8	8.8
1-Jul-21	1077	F	0	1:7 Pre-Dilution	8.12	9.94	15.9	48.8	49.1	16.0	32.6	1053	22.1	11.3	7.2
1-Jul-21	1078	F	0	1:7 Pre-Dilution	2.87	11.42	17.0	52.8	46.2	14.9	32.2	756	22.1	12.0	8.1
1-Jul-21	1079	F	125	1:7 Pre-Dilution	5.08	10.72	16.2	52.1	48.6	15.1	31.1	318	24.4	12.5	8.5
1-Jul-21	1080	F	125	1:7 Pre-Dilution	6.44	10.54	16.4	50.0	47.4	15.6	32.8	1077	22.6	11.9	8.9
1-Jul-21	1081	F	250	1:7 Pre-Dilution	6.16	9.46	15.0	47.6	50.3	15.9	31.5	937	26.0	13.1	7.9
1-Jul-21	1082	F	250	1:7 Pre-Dilution	5.77	9.27	14.5	44.8	48.3	15.6	32.4	795	23.5	12.1	8.9
2-Jul-21	784	M	250	1:7 Pre-Dilution	2.52	10.06	15.5	49.2	48.9	15.4	31.5	762	22.9	11.7	8.4
2-Jul-21	807	M	0	1:7 Pre-Dilution	4.68	10.11	14.8	45.6	45.1	14.6	32.5	1371	24.0	13.6	7.4
2-Jul-21	808	M	0	1:7 Pre-Dilution	5.15	9.77	14.5	45.4	46.5	14.8	31.9	1417	22.3	12.1	8.3
2-Jul-21	855	M	125	1:7 Pre-Dilution	1.70	9.80	14.3	45.5	46.4	14.6	31.4	1386	24.3	13.1	7.4
2-Jul-21	856	M	125	1:7 Pre-Dilution	2.58	9.71	15.5	47.3	48.7	16.0	32.8	1225	23.1	11.8	8.1
2-Jul-21	1051	F	1,000	1:7 Pre-Dilution	4.65	9.90	15.5	46.4	46.9	15.7	33.5	1189	24.1	13.1	8.0
2-Jul-21	1052	F	1,000	1:7 Pre-Dilution	6.59	9.27	15.1	46.5	50.2	16.3	32.5	924	22.3	11.2	8.4
2-Jul-21	1071	F	250	1:7 Pre-Dilution	5.24	9.84	15.3	48.6	49.4	15.5	31.5	970	27.1	13.9	7.9
2-Jul-21	1072	F	250	1:7 Pre-Dilution	8.64	9.74	14.8	46.4	47.6	15.2	31.9	959	27.0	14.2	8.2
2-Jul-21	1099	F	2,000	1:7 Pre-Dilution	3.34	7.44	11.6	34.9	46.9	15.6	33.2	29	22.8	12.4	7.1
2-Jul-21	1100	F	2,000	1:7 Pre-Dilution	3.52	10.72	16.7	50.9	47.5	15.6	32.8	952	22.3	11.8	7.5
2-Jul-21	1107	F	125	1:7 Pre-Dilution	8.90	10.44	16.4	49.8	47.7	15.7	32.9	1224	22.5	12.1	8.4
2-Jul-21	1108	F	125	1:7 Pre-Dilution	8.25	10.78	16.8	51.2	47.5	15.6	32.8	915	22.4	11.9	8.6
2-Jul-21	1113	F	500	1:7 Pre-Dilution	7.58	10.12	15.4	46.8	46.2	15.2	32.9	1234	21.7	11.8	7.1
2-Jul-21	1114	F	500	1:7 Pre-Dilution	8.67	10.05	15.3	47.6	47.4	15.2	32.1	884	25.1	13.7	9.1
2-Jul-21	1119	F	0	1:7 Pre-Dilution	8.65	11.00	17.4	52.5	47.7	15.8	33.1	1019	22.4	11.9	7.7
2-Jul-21	1120	F	0	1:7 Pre-Dilution	7.80	9.60	15.5	46.5	48.4	16.1	33.3	1211	24.7	12.7	8.3

Table F-20b. ECOPOL A Hematology Data continued

ID	NRBC		NEUT		LYMPH		MONO		EO		BASO		RET		IRF	RET-He	PLT-F
	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(%)	(pg)	(K/uL)
771	0.04	0.4	3.16	35.4	5.25	58.9	0.21	2.4	0.27	3.0	0.03	0.30	0.4047	3.61	51.8	17.5	1102
772	0.00	0.0	1.99	29.1	4.65	68.1	0.15	2.2	0.04	0.6	0.00	0.00	0.4402	4.02	51.5	18.3	1097
821	0.03	0.7	0.58	12.6	3.85	83.7	0.10	2.2	0.06	1.3	0.01	0.20	0.4929	4.90	54.5	18.9	974
822	0.00	0.0	1.22	18.2	5.30	78.9	0.13	1.9	0.07	1.0	0.00	0.00	0.3065	3.08	55.6	18.0	1208
837	0.00	0.0	1.22	24.9	3.45	70.4	0.15	3.1	0.08	1.6	0.00	0.00	0.3103	2.95	52.2	18.2	1027
838	0.00	0.0	1.14	12.8	7.43	83.1	0.21	2.3	0.15	1.7	0.01	0.10	0.4371	3.72	54.1	18.3	896
1019	0.03	0.6	0.45	8.6	4.30	82.7	0.32	6.2	0.13	2.5	0.00	0.00	0.5325	5.16	61.0	18.6	1214
1020	0.00	0.0	0.40	8.2	4.20	85.7	0.25	5.1	0.05	1.0	0.00	0.00	0.4703	4.75	60.0	18.9	813
1021	0.02	0.3	1.07	15.5	5.59	81.0	0.11	1.6	0.13	1.9	0.00	0.00	0.4541	4.26	60.7	19.2	1178
1022	0.00	0.0	0.70	20.4	2.54	74.3	0.05	1.5	0.13	3.8	0.00	0.00	0.3078	2.66	47.3	17.3	1540
1023	0.00	0.0	0.36	8.9	3.00	74.1	0.15	3.7	0.54	13.3	0.00	0.00	0.2712	3.83	53.7	19.5	48
1024	0.02	0.2	1.01	10.3	8.44	86.4	0.23	2.4	0.08	0.8	0.01	0.10	0.2492	2.47	57.7	18.5	818
1053	0.03	0.5	0.49	7.4	5.78	88.2	0.20	3.1	0.07	1.1	0.01	0.20	0.3812	4.25	65.7	19.4	910
1054	0.00	0.0	0.57	10.9	4.48	85.8	0.14	2.7	0.03	0.6	0.00	0.00	0.3795	3.71	67.4	18.5	1132
1059	0.03	0.5	0.91	14.1	5.30	81.8	0.17	2.6	0.10	1.5	0.00	0.00	0.4699	4.79	58.5	18.7	742
1060	0.00	0.0	1.06	17.7	4.62	77.1	0.21	3.5	0.10	1.7	0.00	0.00	0.2154	2.16	54.4	19.2	1125
1089	0.26	4.0	0.69	10.7	5.34	82.9	0.33	5.1	0.07	1.1	0.01	0.20	0.6551	7.68	63.3	18.3	1114
1090	0.06	1.0	0.94	15.7	4.92	82.0	0.11	1.8	0.02	0.3	0.01	0.20	0.5002	4.88	62.9	17.9	1004
815	0.00	0.0	1.27	20.8	4.51	74.2	0.20	3.3	0.09	1.5	0.01	0.20	0.3626	3.20	59.5	17.8	1083
816	0.00	0.0	0.46	13.9	2.74	82.8	0.08	2.4	0.03	0.9	0.00	0.00	0.3165	3.65	56.0	19.1	810
851	0.02	0.4	1.02	20.0	3.79	74.5	0.25	4.9	0.03	0.6	0.00	0.00	0.3059	3.21	53.6	18.0	1323
852	0.00	0.0	0.69	33.2	1.36	65.4	0.03	1.4	0.00	0.0	0.00	0.00	0.3232	3.09	58.4	18.5	985
879	0.00	0.0	0.65	9.1	6.30	87.5	0.18	2.5	0.06	0.8	0.01	0.10	0.3949	4.17	59.7	17.9	1083
880	0.00	0.0	1.00	11.1	7.75	85.4	0.23	2.5	0.09	1.0	0.00	0.00	0.3655	3.73	61.5	17.8	955
1013	0.02	0.2	0.44	5.3	7.58	92.0	0.12	1.5	0.09	1.1	0.01	0.10	0.4002	3.58	57.7	18.6	700
1014	0.04	0.4	0.87	9.7	7.58	84.5	0.36	4.0	0.16	1.8	0.00	0.00	0.4343	4.82	61.7	19.5	1179
1030	0.00	0.0	0.44	10.9	3.39	84.8	0.11	2.8	0.06	1.5	0.00	0.00	0.2264	2.00	56.8	18.2	486
1031	0.02	0.3	0.51	7.6	5.88	88.4	0.13	2.0	0.10	1.5	0.03	0.50	0.3576	3.26	57.4	19.7	505

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1032	0.03	0.5	0.57	9.2	5.38	86.2	0.19	3.0	0.10	1.6	0.00	0.00	0.5169	5.20	63.0	19.5	1068
1093	0.0	0.00	0.8	12.60	4.9	81.80	0.2	3.60	0.1	2.00	0.00	0.0000	0.31	3.6	63.2	20	1101
1094	0.00	0.0	0.86	15.2	4.32	76.5	0.23	4.1	0.24	4.2	0.00	0.00	0.1131	1.21	24.4	17.3	910
1103	0.00	0.0	1.59	16.7	7.32	76.9	0.31	3.3	0.29	3.0	0.01	0.10	0.4141	4.10	66.5	20.9	1135
1104	0.00	0.0	0.55	7.9	6.25	89.3	0.10	1.4	0.07	1.0	0.03	0.40	0.3263	2.94	54.6	18.6	868
1105	0.00	0.0	0.81	12.9	4.91	78.2	0.22	3.5	0.34	5.4	0.00	0.00	0.5703	5.35	60.6	19.4	1012
1106	0.02	0.2	1.52	17.4	6.65	76.3	0.41	4.7	0.13	1.5	0.01	0.10	0.4052	4.38	53.4	19.1	1222
775	0.02	0.2	1.45	14.6	8.15	81.9	0.25	2.5	0.10	1.0	0.00	0.00	0.3902	4.01	54.4	18.8	895
776	0.02	0.4	1.69	33.4	3.12	61.8	0.15	3.0	0.09	1.8	0.00	0.00	0.3292	3.37	58.9	18.8	919
779	0.00	0.0	0.64	19.8	1.94	60.1	0.07	2.2	0.56	17.3	0.02	0.60	0.3252	3.37	59.5	18.5	272
780	0.00	0.0	1.75	20.9	6.32	75.7	0.23	2.8	0.05	0.6	0.00	0.00	0.3242	3.20	53.9	17.9	1589
825	0.00	0.0	0.90	15.1	4.75	79.7	0.25	4.2	0.06	1.0	0.00	0.00	0.3458	3.22	53.1	18.1	1161
826	0.03	0.8	1.50	40.5	2.05	55.3	0.11	3.0	0.05	1.3	0.00	0.00	0.4159	4.21	60.8	18.7	1138
1007	0.00	0.0	0.50	6.7	6.73	89.9	0.12	1.6	0.13	1.7	0.01	0.10	0.2030	1.80	43.2	18.3	632
1008	0.02	0.4	0.55	9.7	4.78	84.9	0.20	3.6	0.08	1.4	0.02	0.40	0.2213	2.10	51.1	19.0	829
1009	0.03	0.5	0.61	10.7	4.74	83.6	0.26	4.6	0.05	0.9	0.01	0.20	0.5235	4.99	62.4	19.3	759
1010	0.00	0.0	0.55	6.8	7.21	87.9	0.22	2.7	0.20	2.4	0.02	0.20	0.4490	4.28	56.0	18.6	1087
1011	0.00	0.0	0.61	6.4	8.36	87.8	0.34	3.6	0.20	2.1	0.01	0.10	0.4810	4.59	61.6	18.5	628
1012	0.03	0.4	0.38	4.9	7.06	91.5	0.24	3.1	0.04	0.5	0.00	0.00	0.4803	5.12	66.3	20.2	742
1015	0.00	0.0	1.00	12.2	6.97	85.1	0.17	2.1	0.05	0.6	0.00	0.00	0.4983	5.18	59.0	19.4	1215
1016	0.00	0.0	0.67	13.2	4.17	82.1	0.17	3.3	0.07	1.4	0.00	0.00	0.3052	2.86	51.8	18.8	1135
1057	0.00	0.0	0.60	6.9	7.76	89.3	0.21	2.4	0.12	1.4	0.00	0.00	0.2076	1.86	55.5	18.7	1047
1058	0.02	0.3	0.82	14.1	4.71	81.1	0.20	3.4	0.08	1.4	0.00	0.00	0.3930	3.83	62.8	18.4	1189
1063	0.00	0.0	0.77	10.5	6.27	84.7	0.18	2.4	0.17	2.3	0.01	0.10	0.3385	3.29	62.1	19.4	199
1064	0.02	0.2	1.61	18.8	6.76	78.7	0.14	1.6	0.08	0.9	0.00	0.00	0.3394	3.37	52.4	19.1	1430
806	0.00	0.0	0.70	9.8	6.10	84.8	0.32	4.5	0.06	0.8	0.01	0.10	0.3400	3.40	54.3	18.2	800
873	0.02	0.4	1.10	20.8	3.93	74.3	0.19	3.6	0.07	1.3	0.00	0.00	0.3019	2.97	53.0	17.7	1063
874	0.02	0.2	1.35	15.0	7.38	82.4	0.13	1.5	0.10	1.1	0.00	0.00	0.3549	3.37	53.9	17.4	1260
875	0.03	1.0	0.66	21.6	2.20	71.9	0.18	5.9	0.01	0.3	0.01	0.30	0.3777	3.85	52.5	17.9	1483
876	0.00	0.0	1.49	28.7	3.43	66.2	0.19	3.7	0.07	1.4	0.00	0.00	0.3467	3.56	54.4	17.9	1537
1047	0.00	0.0	0.32	7.6	3.73	89.0	0.10	2.4	0.04	1.0	0.00	0.00	0.3517	3.25	54.6	18.3	1002
1048	0.00	0.0	0.75	17.8	3.30	78.6	0.08	1.9	0.07	1.7	0.00	0.00	0.5663	5.64	51.2	19.1	1192
1049	0.00	0.0	0.98	13.0	6.31	83.2	0.23	3.0	0.06	0.8	0.00	0.00	0.1884	1.96	51.9	18.3	1185
1050	0.03	0.6	0.70	14.6	3.90	81.1	0.18	3.7	0.03	0.6	0.00	0.00	0.4360	4.91	66.6	18.9	906

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1065	0.00	0.0	1.68	18.2	7.06	76.4	0.36	3.9	0.14	1.5	0.00	0.00	0.1405	1.36	63.2	18.0	1313
1066	0.00	0.0	1.57	21.2	5.34	72.1	0.34	4.6	0.15	2.0	0.01	0.10	0.3145	3.46	52.0	19.9	1246
1077	0.00	0.0	0.93	11.5	6.83	84.1	0.18	2.2	0.17	2.1	0.01	0.10	0.2863	2.88	46.9	19.1	1053
1078	0.00	0.0	0.43	15.1	2.28	79.4	0.09	3.1	0.05	1.7	0.02	0.70	0.3837	3.36	56.4	18.0	756
1079	0.03	0.6	0.31	6.0	4.59	90.4	0.13	2.6	0.04	0.8	0.01	0.20	0.4996	4.66	69.4	18.8	318
1080	0.00	0.0	0.75	11.6	5.46	84.8	0.14	2.2	0.08	1.2	0.01	0.20	0.2688	2.55	43.9	18.9	1077
1081	0.03	0.5	0.48	7.8	5.28	85.7	0.27	4.4	0.12	1.9	0.01	0.20	0.4465	4.72	69.0	19.7	937
1082	0.02	0.3	0.57	9.9	5.00	86.7	0.14	2.4	0.06	1.0	0.00	0.00	0.2559	2.76	63.8	19.1	795
784	0.00	0.0	0.34	13.4	2.01	79.8	0.08	3.2	0.09	3.6	0.00	0.00	0.4094	4.07	59.4	18.7	762
807	0.00	0.0	0.76	16.2	3.66	78.2	0.20	4.3	0.06	1.3	0.00	0.00	0.2962	2.93	54.0	17.4	1371
808	0.00	0.0	0.92	17.9	4.04	78.4	0.14	2.7	0.05	1.0	0.00	0.00	0.3888	3.98	54.6	18.1	1417
855	0.00	0.0	0.37	21.7	1.25	73.5	0.04	2.4	0.04	2.4	0.00	0.00	0.4165	4.25	58.4	17.9	1386
856	0.02	0.8	0.54	20.9	1.96	76.0	0.05	1.9	0.02	0.8	0.01	0.40	0.4001	4.12	60.7	19.3	1225
1051	0.00	0.0	0.40	8.6	4.13	88.8	0.05	1.1	0.07	1.5	0.00	0.00	0.3020	3.05	55.2	19.5	1189
1052	0.02	0.3	0.58	8.8	5.82	88.3	0.13	2.0	0.06	0.9	0.00	0.00	0.3365	3.63	60.7	20.1	924
1071	0.06	1.1	0.48	9.2	4.37	83.4	0.31	5.9	0.08	1.5	0.00	0.00	0.7203	7.32	65.2	19.1	970
1072	0.03	0.3	0.68	7.9	7.63	88.3	0.27	3.1	0.06	0.7	0.00	0.00	0.3536	3.63	60.7	18.5	959
1099	0.00	0.0	0.16	4.8	2.95	88.3	0.14	4.2	0.09	2.7	0.00	0.00	0.2103	2.83	56.5	19.4	29
1100	0.00	0.0	0.70	19.9	2.56	72.7	0.19	5.4	0.07	2.0	0.00	0.00	0.2219	2.07	52.7	19.4	952
1107	0.00	0.0	1.04	11.7	7.55	84.8	0.25	2.8	0.06	0.7	0.00	0.00	0.4322	4.14	57.6	19.1	1224
1108	0.02	0.2	1.54	18.7	6.36	77.1	0.19	2.3	0.15	1.8	0.01	0.10	0.3902	3.62	55.0	19.0	915
1113	0.00	0.0	0.67	8.8	6.60	87.1	0.10	1.3	0.21	2.8	0.00	0.00	0.3309	3.27	58.0	18.6	1234
1114	0.04	0.5	1.59	18.3	6.63	76.5	0.31	3.6	0.13	1.5	0.01	0.10	0.7105	7.07	68.4	19.5	884
1119	0.00	0.0	1.13	13.0	7.15	82.7	0.25	2.9	0.12	1.4	0.00	0.00	0.3300	3.00	61.2	19.5	1019
1120	0.00	0.0	1.28	16.4	6.09	78.1	0.15	1.9	0.27	3.5	0.01	0.10	0.4541	4.73	56.2	19.4	1211

Table F-21a. Enviro USP Hematology Data

Date	ID	Sex	Dose (mg/L)	Sample Type	WBC (K/uL)	RBC (M/uL)	HGB (g/dL)	HCT (%)	MCV (fL)	MCH (pg)	MCHC (g/dL)	PLT (K/uL)	RDW-SD (fL)	RDW-CV (%)	MPV (fL)
12-Jul-21	885	M	0	1:7 Pre-Dilution	6.78	10.23	15.6	49.3	48.2	15.2	31.6	1373	23.2	12.2	8.6
12-Jul-21	886	M	0	1:7 Pre-Dilution	2.95	10.04	14.4	45.5	45.3	14.3	31.6	1394	20.6	11.5	7.0
12-Jul-21	919	M	250	1:7 Pre-Dilution	1.64	9.78	15.4	46.3	47.3	15.7	33.3	1514	22.3	11.8	8.2
12-Jul-21	920	M	250	1:7 Pre-Dilution	3.79	11.23	16.5	50.5	45.0	14.7	32.7	1033	21.8	12.3	7.4
12-Jul-21	963	M	125	1:7 Pre-Dilution	5.39	9.86	15.4	47.1	47.8	15.6	32.7	1279	23.8	12.6	7.9
12-Jul-21	964	M	125	1:7 Pre-Dilution	4.24	10.27	15.4	46.7	45.5	15.0	33.0	1340	23.7	13.1	7.2
12-Jul-21	1135	F	500	1:7 Pre-Dilution	5.88	10.92	17.1	52.2	47.8	15.7	32.8	806	24.3	12.7	7.7
12-Jul-21	1136	F	500	1:7 Pre-Dilution	2.66	10.46	16.2	49.3	47.1	15.5	32.9	1120	22.7	12.1	8.1
12-Jul-21	1151	F	1,000	1:7 Pre-Dilution	2.96	9.83	14.9	45.7	46.5	15.2	32.6	1178	24.3	13.1	7.6
12-Jul-21	1152	F	1,000	1:7 Pre-Dilution	3.72	10.63	15.5	47.6	44.8	14.6	32.6	877	21.3	12.0	8.5
12-Jul-21	1181	F	0	1:7 Pre-Dilution	5.90	10.31	15.6	48.2	46.8	15.1	32.4	1402	24.0	13.0	8.0
12-Jul-21	1182	F	0	1:7 Pre-Dilution	4.09	9.83	15.7	46.8	47.6	16.0	33.5	822	23.8	12.7	8.6
12-Jul-21	1183	F	250	1:7 Pre-Dilution	2.92	9.80	15.3	45.6	46.5	15.6	33.6	1154	22.6	12.3	8.0
12-Jul-21	1184	F	250	1:7 Pre-Dilution	2.25	11.14	16.6	50.4	45.2	14.9	32.9	764	22.7	12.7	7.6
12-Jul-21	1207	F	2,000	1:7 Pre-Dilution	3.56	11.19	16.5	51.2	45.8	14.7	32.2	365	21.7	11.8	8.5
12-Jul-21	1208	F	2,000	1:7 Pre-Dilution	7.68	10.58	16.7	51.0	48.2	15.8	32.7	980	24.7	12.9	8.0
12-Jul-21	1221	F	125	1:7 Pre-Dilution	2.20	10.51	15.5	47.0	44.7	14.7	33.0	1157	25.6	14.4	8.2
12-Jul-21	1222	F	125	1:7 Pre-Dilution	8.47	10.03	15.5	46.6	46.5	15.5	33.3	1454	25.5	13.9	7.3
13-Jul-21	1129	F	2,000	1:7 Pre-Dilution	4.01	10.34	15.1	46.3	44.8	14.6	32.6	1182	22.3	12.7	7.1
13-Jul-21	1130	F	2,000	1:7 Pre-Dilution	3.22	10.72	16.3	47.7	44.5	15.2	34.2	814	21.4	12.2	7.0
13-Jul-21	1137	F	125	1:7 Pre-Dilution	4.37	9.24	14.7	44.4	48.1	15.9	33.1	1103	24.7	13.2	8.1
13-Jul-21	1138	F	125	1:7 Pre-Dilution	3.78	9.61	15.3	47.1	49.0	15.9	32.5	805	25.0	12.8	8.7
13-Jul-21	1159	F	250	1:7 Pre-Dilution	3.51	9.77	16.1	50.0	51.2	16.5	32.2	927	24.8	12.0	8.1
13-Jul-21	1160	F	250	1:7 Pre-Dilution	3.61	11.03	16.8	51.5	46.7	15.2	32.6	973	24.0	13.0	7.7
13-Jul-21	1195	F	0	1:7 Pre-Dilution	3.83	9.82	15.2	47.2	48.1	15.5	32.2	757	23.6	12.4	8.1
13-Jul-21	1196	F	0	1:7 Pre-Dilution	5.96	11.95	18.7	57.0	47.7	15.6	32.8	704	22.6	12.0	7.8
13-Jul-21	1203	F	1,000	1:7 Pre-Dilution	3.77	9.93	15.7	48.2	48.5	15.8	32.6	995	26.3	13.6	8.6
13-Jul-21	1204	F	1,000	1:7 Pre-Dilution	5.74	10.71	16.2	50.1	46.8	15.1	32.3	1074	23.4	12.6	7.8

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13-Jul-21	1215	F	500	1:7 Pre-Dilution	7.52	11.35	17.9	54.0	47.6	15.8	33.1	757	22.9	12.2	7.6
13-Jul-21	1216	F	500	1:7 Pre-Dilution	3.85	10.64	15.1	47.3	44.5	14.2	31.9	1153	21.7	12.2	7.5
14-Jul-21	917	M	0	1:7 Pre-Dilution	6.26	9.45	13.9	45.2	47.8	14.7	30.8	1208	22.8	12.0	7.8
14-Jul-21	918	M	0	1:7 Pre-Dilution	2.87	9.46	14.0	45.7	48.3	14.8	30.6	1304	24.0	12.6	7.8
14-Jul-21	937	M	250	1:7 Pre-Dilution	4.35	10.50	16.2	52.2	49.7	15.4	31.0	1085	24.8	12.6	7.6
14-Jul-21	938	M	250	1:7 Pre-Dilution	1.61	10.23	14.9	47.4	46.3	14.6	31.4	1481	22.9	12.3	7.0
14-Jul-21	983	M	125	1:7 Pre-Dilution	2.86	10.11	15.3	47.2	46.7	15.1	32.4	908	24.1	13.0	8.6
14-Jul-21	984	M	125	1:7 Pre-Dilution	4.18	10.24	16.3	49.7	48.5	15.9	32.8	1025	21.2	11.1	7.2
14-Jul-21	1133	F	1,000	1:7 Pre-Dilution	5.70	10.04	14.6	47.3	47.1	14.5	30.9	1133	26.9	14.6	8.2
14-Jul-21	1134	F	1,000	1:7 Pre-Dilution	5.73	11.28	16.9	51.6	45.7	15.0	32.8	1067	22.9	12.5	7.7
14-Jul-21	1157	F	0	1:7 Pre-Dilution	4.06	9.87	15.4	47.9	48.5	15.6	32.2	1173	22.3	11.4	7.8
14-Jul-21	1158	F	0	1:7 Pre-Dilution	2.49	10.17	15.1	47.8	47.0	14.8	31.6	756	22.4	12.1	8.4
14-Jul-21	1165	F	250	1:7 Pre-Dilution	4.85	10.26	16.0	48.6	47.4	15.6	32.9	842	23.3	12.6	8.1
14-Jul-21	1166	F	250	1:7 Pre-Dilution	1.53	8.09	11.9	37.0	45.7	14.7	32.2	51	23.8	13.2	7.2
14-Jul-21	1177	F	500	1:7 Pre-Dilution	5.77	9.34	14.7	46.1	49.4	15.7	31.9	1092	24.0	12.1	7.2
14-Jul-21	1178	F	500	1:7 Pre-Dilution	4.71	10.32	15.9	48.5	47.0	15.4	32.8	1264	23.0	12.5	8.3
14-Jul-21	1209	F	2,000	1:7 Pre-Dilution	8.02	11.22	16.1	50.7	45.2	14.3	31.8	810	22.9	13.0	8.5
14-Jul-21	1210	F	2,000	1:7 Pre-Dilution	8.40	9.42	15.0	48.1	51.1	15.9	31.2	1258	26.3	12.9	8.5
14-Jul-21	1231	F	125	1:7 Pre-Dilution	3.97	8.56	13.6	42.2	49.3	15.9	32.2	922	22.7	11.7	9.0
14-Jul-21	1232	F	125	1:7 Pre-Dilution	3.02	10.00	15.3	46.9	46.9	15.3	32.6	838	23.8	12.8	7.2
15-Jul-21	965	M	0	1:7 Pre-Dilution	4.82	9.66	14.5	46.8	48.4	15.0	31.0	1404	24.0	12.3	8.2
15-Jul-21	966	M	0	1:7 Pre-Dilution	6.06	10.84	16.0	50.4	46.5	14.8	31.7	1381	23.9	12.8	7.5
15-Jul-21	883	M	250	1:7 Pre-Dilution	4.33	11.13	16.1	53.1	47.7	14.5	30.3	851	22.4	11.8	8.5
15-Jul-21	884	M	250	1:7 Pre-Dilution	8.84	9.68	14.2	45.3	46.8	14.7	31.3	1463	23.9	12.8	6.9
15-Jul-21	929	M	125	1:7 Pre-Dilution	1.96	9.50	14.3	45.4	47.8	15.1	31.5	1580	23.0	12.2	8.2
15-Jul-21	930	M	125	1:7 Pre-Dilution	4.22	9.13	14.8	46.8	51.3	16.2	31.6	1182	22.7	11.2	9.3
15-Jul-21	1185	F	0	1:7 Pre-Dilution	2.94	9.30	15.2	47.4	51.0	16.3	32.1	643	26.3	13.0	8.8
15-Jul-21	1186	F	0	1:7 Pre-Dilution	2.35	10.27	15.2	48.0	46.7	14.8	31.7	315	22.4	12.1	8.4
15-Jul-21	1145	F	125	1:7 Pre-Dilution	5.23	10.51	16.1	50.9	48.4	15.3	31.6	1005	24.0	12.3	8.3
15-Jul-21	1146	F	125	1:7 Pre-Dilution	5.43	9.13	14.3	44.5	48.7	15.7	32.1	1035	24.5	12.8	8.0
15-Jul-21	1175	F	500	1:7 Pre-Dilution	2.20	8.18	12.7	39.3	48.0	15.5	32.3	61	23.1	12.1	7.1
15-Jul-21	1176	F	500	1:7 Pre-Dilution	6.08	10.30	15.5	48.2	46.8	15.0	32.2	1174	22.7	12.3	8.4
15-Jul-21	1179	F	250	1:7 Pre-Dilution	4.48	9.91	15.3	45.9	46.3	15.4	33.3	1121	24.0	13.0	7.2
15-Jul-21	1180	F	250	1:7 Pre-Dilution	10.89	10.09	15.9	50.1	49.7	15.8	31.7	1210	23.8	12.0	7.6

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15-Jul-21	1197	F	2,000	1:7 Pre-Dilution	4.63	9.37	13.8	43.8	46.7	14.7	31.5	1028	25.2	13.7	8.5
15-Jul-21	1198	F	2,000	1:7 Pre-Dilution	4.19	9.03	14.1	43.9	48.6	15.6	32.1	1149	25.3	13.1	7.9
15-Jul-21	1235	F	1,000	1:7 Pre-Dilution	4.04	9.46	14.8	46.3	48.9	15.6	32.0	1197	21.8	11.2	8.3
15-Jul-21	1236	F	1,000	1:7 Pre-Dilution	3.65	9.43	14.5	46.2	49.0	15.4	31.4	792	24.3	12.3	8.3
16-Jul-21	901	M	0	1:7 Pre-Dilution	2.97	9.45	14.2	45.1	47.7	15.0	31.5	1365	22.3	11.9	7.3
16-Jul-21	902	M	0	1:7 Pre-Dilution	4.32	10.05	15.1	48.7	48.5	15.0	31.0	1170	21.5	11.2	7.8
16-Jul-21	981	M	250	1:7 Pre-Dilution	4.41	6.90	14.3	44.6	46.5	14.9	32.1	1548	22.6	12.1	6.5
16-Jul-21	982	M	250	1:7 Pre-Dilution	2.87	9.61	15.0	47.4	49.3	15.6	31.6	1392	24.4	12.5	7.9
16-Jul-21	995	M	125	1:7 Pre-Dilution	2.82	11.42	16.9	52.8	46.2	14.8	32.0	1293	22.7	12.4	7.5
16-Jul-21	996	M	125	1:7 Pre-Dilution	6.56	11.90	17.4	55.1	46.3	14.6	31.6	1198	21.9	11.9	8.1
16-Jul-21	1163	F	2,000	1:7 Pre-Dilution	4.33	10.44	15.6	47.1	45.1	14.9	33.1	944	21.3	11.9	8.1
16-Jul-21	1187	F	125	1:7 Pre-Dilution	3.34	12.01	18.9	57.4	47.8	15.7	32.9	296	22.6	12.0	8.1
16-Jul-21	1189	F	0	1:7 Pre-Dilution	4.39	11.25	17.0	52.5	46.7	15.1	32.4	1133	21.6	11.5	7.0
16-Jul-21	1190	F	0	1:7 Pre-Dilution	3.81	9.30	15.1	47.0	50.5	16.2	32.1	770	27.0	13.4	7.8
16-Jul-21	1193	F	1,000	1:7 Pre-Dilution	1.78	10.78	16.8	52.9	49.1	15.6	31.8	607	23.9	12.2	8.5
16-Jul-21	1194	F	1,000	1:7 Pre-Dilution	3.57	10.84	16.1	52.2	48.2	14.9	30.8	887	24.7	12.7	8.5
16-Jul-21	1219	F	500	1:7 Pre-Dilution	6.52	11.07	16.4	51.4	46.4	14.8	31.9	1098	22.7	12.3	7.8
16-Jul-21	1220	F	500	1:7 Pre-Dilution	5.07	10.09	15.4	48.9	48.5	15.3	31.5	840	25.2	13.0	7.7
16-Jul-21	1237	F	250	1:7 Pre-Dilution	5.50	11.36	16.7	53.0	46.7	14.7	31.5	815	23.2	12.4	7.8
16-Jul-21	1238	F	250	1:7 Pre-Dilution	4.70	9.63	14.7	46.5	48.3	15.3	31.6	1018	26.1	13.8	7.6

Table F-21b. Enviro USP Hematology Data continued

ID	NRBC		NEUT		LYMPH		MONO		EO		BASO		RET		IRF	RET-He	PLT-F
	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(%)	(pg)	(K/uL)
885	0.02	0.3	0.73	10.9	5.84	86.1	0.13	1.9	0.07	1.0	0.01	0.10	0.3724	3.64	55.7	18.9	1373
886	0.02	0.7	0.87	29.5	2.01	68.1	0.05	1.7	0.02	0.7	0.00	0.00	0.3574	3.56	57.1	17.7	1394
919	0.00	0.0	0.33	20.2	1.23	75.0	0.04	2.4	0.03	1.8	0.01	0.60	0.3367	3.45	59.5	18.8	1514
920	0.00	0.0	0.82	21.6	2.83	74.7	0.10	2.6	0.04	1.1	0.00	0.00	0.3403	3.03	58.5	17.7	1033
963	0.00	0.0	0.62	11.5	4.62	85.7	0.10	1.9	0.05	0.9	0.00	0.00	0.4112	4.17	62.6	18.7	1279
964	0.02	0.5	0.91	21.5	3.19	75.2	0.13	3.1	0.01	0.2	0.00	0.00	0.3738	3.64	55.2	18.1	1340
1135	0.00	0.0	0.50	8.5	5.13	87.2	0.14	2.4	0.11	1.9	0.00	0.00	0.4248	3.89	61.4	19.2	806
1136	0.00	0.0	0.32	11.9	2.18	82.0	0.09	3.4	0.05	1.9	0.02	0.80	0.2228	2.13	57.7	18.5	1120
1151	0.02	0.7	0.45	15.2	2.38	80.4	0.09	3.0	0.04	1.4	0.00	0.00	0.3352	3.41	58.3	18.9	1178
1152	0.05	1.3	0.98	26.3	2.62	70.4	0.08	2.2	0.03	0.8	0.01	0.30	0.4656	4.38	60.8	18.0	877
1181	0.00	0.0	0.64	10.8	5.01	84.9	0.13	2.2	0.11	1.9	0.01	0.20	0.5279	5.12	60.2	18.5	1402
1182	0.03	0.7	0.52	12.7	3.43	83.9	0.08	2.0	0.05	1.2	0.01	0.20	0.2693	2.74	62.8	19.3	822
1183	0.00	0.0	0.34	11.7	2.46	84.2	0.05	1.7	0.07	2.4	0.00	0.00	0.2695	2.75	42.1	18.4	1154
1184	0.00	0.0	0.37	16.4	1.66	73.8	0.17	7.6	0.04	1.8	0.01	0.40	0.3587	3.22	46.4	18.1	764
1207	0.02	0.6	0.25	7.0	3.19	89.6	0.06	1.7	0.05	1.4	0.01	0.30	0.4241	3.79	59.1	17.9	365
1208	0.02	0.3	0.68	8.9	6.57	85.5	0.18	2.3	0.25	3.3	0.00	0.00	0.3745	3.54	60.7	19.3	980
1221	0.00	0.0	0.39	17.6	1.66	75.5	0.12	5.5	0.03	1.4	0.00	0.00	0.5329	5.07	55.6	18.5	1157
1222	0.03	0.4	0.55	6.5	7.46	88.1	0.33	3.9	0.12	1.4	0.01	0.10	0.5085	5.07	59.2	19.2	1454
1129	0.00	0.0	0.39	9.7	3.44	85.8	0.14	3.5	0.04	1.0	0.00	0.00	0.3981	3.85	61.5	18.1	1182
1130	0.05	1.6	0.99	30.7	2.08	64.6	0.07	2.2	0.06	1.9	0.02	0.60	0.3816	3.56	57.4	18.2	814
1137	0.02	0.5	0.22	5.0	3.84	87.9	0.13	3.0	0.18	4.1	0.00	0.00	0.5562	6.02	61.0	19.5	1103
1138	0.02	0.5	0.47	12.4	3.05	80.7	0.20	5.3	0.06	1.6	0.00	0.00	0.3122	3.25	57.7	18.7	805
1159	0.03	0.9	0.43	12.3	2.95	84.0	0.09	2.6	0.04	1.1	0.00	0.00	0.4289	4.39	64.5	20.0	927
1160	0.02	0.6	0.34	9.5	3.11	86.1	0.07	1.9	0.09	2.5	0.00	0.00	0.5725	5.19	58.6	18.6	973
1195	0.00	0.0	0.37	9.7	3.29	85.9	0.12	3.1	0.05	1.3	0.00	0.00	0.3682	3.75	58.5	18.8	757
1196	0.00	0.0	0.70	11.7	5.07	85.1	0.14	2.3	0.04	0.7	0.01	0.20	0.5449	4.56	62.4	19.4	704
1203	0.00	0.0	0.47	12.4	3.05	80.9	0.17	4.5	0.07	1.9	0.01	0.30	0.2592	2.61	62.0	18.9	995
1204	0.05	0.9	0.88	15.3	4.66	81.2	0.15	2.6	0.05	0.9	0.00	0.00	0.5291	4.94	64.2	18.2	1074

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1215	0.00	0.0	0.94	12.5	6.40	85.1	0.09	1.2	0.08	1.1	0.01	0.10	0.5153	4.54	66.9	18.7	757
1216	0.00	0.0	0.90	23.3	2.66	69.1	0.26	6.8	0.02	0.5	0.01	0.30	0.3479	3.27	57.1	17.5	1153
917	0.02	0.3	1.83	29.2	4.17	66.6	0.16	2.6	0.09	1.4	0.01	0.20	0.3506	3.71	53.6	18.0	1208
918	0.00	0.0	1.19	41.5	1.56	54.4	0.09	3.1	0.03	1.0	0.00	0.00	0.3765	3.98	63.0	18.3	1304
937	0.00	0.0	0.61	14.0	3.51	80.7	0.22	5.1	0.01	0.2	0.00	0.00	0.4053	3.86	55.5	18.2	1085
938	0.00	0.0	0.21	13.1	1.34	83.2	0.05	3.1	0.01	0.6	0.00	0.00	0.3949	3.86	55.5	17.7	1481
983	0.00	0.0	0.60	21.1	2.14	74.8	0.06	2.1	0.05	1.7	0.01	0.30	0.4014	3.97	57.7	18.0	908
984	0.02	0.5	0.53	12.6	3.51	84.0	0.09	2.2	0.05	1.2	0.00	0.00	0.4055	3.96	60.2	19.0	1025
1133	0.03	0.5	0.67	11.7	4.74	83.2	0.17	3.0	0.12	2.1	0.00	0.00	0.5723	5.70	63.4	18.5	1133
1134	0.02	0.3	0.58	10.2	4.85	84.6	0.15	2.6	0.15	2.6	0.00	0.00	0.3046	2.70	59.4	17.8	1067
1157	0.00	0.0	0.53	13.1	3.35	82.5	0.09	2.2	0.08	2.0	0.01	0.20	0.2458	2.49	49.0	18.4	1173
1158	0.02	0.8	0.34	13.7	2.02	81.1	0.08	3.2	0.04	1.6	0.01	0.40	0.4312	4.24	62.8	18.2	756
1165	0.00	0.0	0.55	11.3	4.05	83.5	0.13	2.7	0.12	2.5	0.00	0.00	0.4484	4.37	57.2	19.4	842
1166	0.00	0.0	0.26	17.0	0.84	54.9	0.05	3.3	0.38	24.8	0.00	0.00	0.2896	3.58	59.0	18.4	51
1177	0.02	0.3	0.65	11.2	4.87	84.4	0.13	2.3	0.12	2.1	0.00	0.00	0.4203	4.50	62.5	19.1	1092
1178	0.00	0.0	0.57	12.2	4.00	84.9	0.11	2.3	0.02	0.4	0.01	0.20	0.3849	3.73	59.0	18.4	1264
1209	0.02	0.2	0.42	5.3	7.37	91.9	0.14	1.7	0.07	0.9	0.02	0.20	0.4443	3.96	58.9	17.4	810
1210	0.00	0.0	0.95	11.3	6.88	81.9	0.35	4.2	0.22	2.6	0.00	0.00	0.5303	5.63	57.7	19.4	1258
1231	0.00	0.0	0.69	17.3	2.87	72.3	0.35	8.8	0.05	1.3	0.01	0.30	0.3518	4.11	58.2	19.2	922
1232	0.02	0.7	0.50	16.6	2.39	79.1	0.07	2.3	0.05	1.7	0.01	0.30	0.6530	6.53	61.0	18.7	838
965	0.02	0.4	1.06	22.0	3.56	73.9	0.15	3.1	0.05	1.0	0.00	0.00	0.3111	3.22	52.0	18.4	1404
966	0.02	0.3	0.93	15.3	5.02	82.8	0.07	1.2	0.03	0.5	0.01	0.20	0.4542	4.19	57.2	18.3	1381
883	0.00	0.0	0.52	12.1	3.57	82.4	0.16	3.7	0.07	1.6	0.01	0.20	0.3250	2.92	56.1	17.4	851
884	0.09	1.9	0.78	16.1	3.80	78.5	0.25	5.2	0.01	0.2	0.00	0.00	0.3291	3.40	53.0	17.3	1463
929	0.02	1.0	0.54	27.5	1.35	68.9	0.05	2.6	0.02	1.0	0.00	0.00	0.3914	4.12	60.4	18.2	1580
930	0.00	0.0	0.96	22.7	3.11	73.7	0.13	3.1	0.02	0.5	0.00	0.00	0.4081	4.47	60.4	19.4	1182
1185	0.04	1.4	0.44	15.1	2.40	81.6	0.08	2.7	0.01	0.3	0.01	0.30	0.3860	4.15	59.3	19.8	643
1186	0.00	0.0	0.24	10.2	1.99	84.7	0.02	0.9	0.09	3.8	0.01	0.40	0.2845	2.77	49.7	18.3	315
1145	0.00	0.0	0.72	13.8	4.18	79.9	0.20	3.8	0.12	2.3	0.01	0.20	0.4215	4.01	57.8	18.3	1005
1146	0.00	0.0	0.58	10.7	4.55	83.8	0.20	3.7	0.10	1.8	0.00	0.00	0.5515	6.04	63.6	19.3	1035
1175	0.00	0.0	0.25	11.3	1.51	68.6	0.03	1.4	0.40	18.2	0.01	0.50	0.3354	4.10	57.5	18.5	61
1176	0.03	0.5	0.72	11.9	5.14	84.5	0.16	2.6	0.05	0.8	0.01	0.20	0.4522	4.39	62.7	18.3	1174
1179	0.03	0.7	0.67	15.0	3.76	83.9	0.03	0.7	0.02	0.4	0.00	0.00	0.4450	4.49	58.5	18.8	1121
1180	0.00	0.0	1.55	14.2	8.60	79.0	0.59	5.4	0.14	1.3	0.01	0.10	0.1887	1.87	47.2	18.7	1210

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1197	0.04	0.9	0.56	12.1	3.71	80.1	0.22	4.8	0.14	3.0	0.00	0.00	0.5332	5.69	59.6	18.1	1028
1198	0.03	0.7	0.55	13.1	3.54	84.5	0.06	1.4	0.04	1.0	0.00	0.00	0.6294	6.97	64.6	18.8	1149
1235	0.02	0.5	0.64	15.8	3.28	81.2	0.08	2.0	0.04	1.0	0.00	0.00	0.2592	2.74	58.6	19.0	1197
1236	0.00	0.0	0.28	7.6	3.28	89.9	0.05	1.4	0.03	0.8	0.01	0.30	0.2065	2.19	58.3	18.3	792
901	0.02	0.7	0.66	22.3	2.23	75.1	0.04	1.3	0.04	1.3	0.00	0.00	0.3345	3.54	55.5	18.1	1365
902	0.00	0.0	0.72	16.6	3.42	79.2	0.12	2.8	0.06	1.4	0.00	0.00	0.3879	3.86	60.5	18.2	1170
981	0.00	0.0	0.93	21.1	3.22	73.0	0.10	2.3	0.16	3.6	0.00	0.00	0.3850	4.01	61.4	18.3	1548
982	0.00	0.0	0.84	29.3	1.93	67.2	0.06	2.1	0.04	1.4	0.00	0.00	0.4017	4.18	60.1	18.6	1392
995	0.00	0.0	0.35	12.4	2.37	84.0	0.04	1.4	0.05	1.8	0.01	0.40	0.3894	3.41	51.3	17.9	1293
996	0.00	0.0	1.06	16.1	5.22	79.6	0.23	3.5	0.05	0.8	0.00	0.00	0.4165	3.50	54.4	17.9	1198
1163	0.00	0.0	0.69	15.9	3.35	77.4	0.15	3.5	0.13	3.0	0.01	0.20	0.3727	3.57	51.7	17.9	944
1187	0.02	0.6	0.29	8.7	2.93	87.7	0.05	1.5	0.06	1.8	0.01	0.30	0.5248	4.37	58.7	18.9	296
1189	0.00	0.0	0.53	12.1	3.66	83.4	0.15	3.4	0.04	0.9	0.01	0.20	0.3071	2.73	36.8	18.1	1133
1190	0.04	1.0	0.47	12.3	3.03	79.5	0.24	6.3	0.06	1.6	0.01	0.30	0.3088	3.32	61.4	19.8	770
1193	0.00	0.0	0.14	7.8	1.58	88.8	0.03	1.7	0.02	1.1	0.01	0.60	0.3698	3.43	59.6	19.0	607
1194	0.00	0.0	0.63	17.6	2.67	74.8	0.16	4.5	0.11	3.1	0.00	0.00	0.4444	4.10	63.8	17.9	887
1219	0.00	0.0	0.77	11.8	5.44	83.4	0.28	4.3	0.03	0.5	0.00	0.00	0.4118	3.72	57.3	18.3	1098
1220	0.02	0.4	0.64	12.6	4.20	82.8	0.17	3.4	0.05	1.0	0.01	0.20	0.3915	3.88	57.4	18.1	840
1237	0.00	0.0	0.84	15.2	4.46	81.1	0.18	3.3	0.02	0.4	0.00	0.00	0.3328	2.93	57.8	18.0	815
1238	0.00	0.0	0.50	10.7	3.86	82.1	0.27	5.7	0.06	1.3	0.01	0.20	0.5095	5.29	59.4	18.3	1018

Table F-22a. NFD 20-391 Hematology Data

Date	ID	Sex	Dose (mg/L)	Sample Type	WBC (K/uL)	RBC (M/uL)	HGB (g/dL)	HCT (%)	MCV (fL)	MCH (pg)	MCHC (g/dL)	PLT (K/uL)	RDW-SD (fL)	RDW-CV (%)	MPV (fL)
19-Jul-21	881	M	0	1:7 Pre-Dilution	3.76	10.21	15.3	48.5	47.5	15.0	31.5	1077	21.9	11.7	8.8
19-Jul-21	882	M	0	1:7 Pre-Dilution	1.62	10.37	14.8	49.2	47.4	14.3	30.1	1268	22.3	11.8	8.0
19-Jul-21	939	M	250	1:7 Pre-Dilution	3.22	9.73	14.5	46.7	48.0	14.9	31.0	1446	26.1	13.6	7.6
19-Jul-21	940	M	250	1:7 Pre-Dilution	1.74	10.25	15.5	50.1	48.9	15.1	30.9	1238	23.0	11.7	7.6
19-Jul-21	987	M	125	1:7 Pre-Dilution	4.10	9.84	14.1	44.1	44.8	14.3	32.0	1729	22.4	12.8	8.7
19-Jul-21	988	M	125	1:7 Pre-Dilution	1.57	9.78	14.6	46.6	47.6	14.9	31.3	1229	22.6	11.9	8.2
19-Jul-21	1139	F	500	1:7 Pre-Dilution	5.22	9.91	15.2	48.8	49.2	15.3	31.1	869	25.3	13.1	8.2
19-Jul-21	1140	F	500	1:7 Pre-Dilution	6.71	9.42	13.8	44.6	47.3	14.6	30.9	1039	24.6	13.1	8.9
19-Jul-21	1147	F	0	1:7 Pre-Dilution	3.34	10.40	16.4	51.8	49.8	15.8	31.7	898	23.0	11.7	8.8
19-Jul-21	1148	F	0	1:7 Pre-Dilution	1.85	9.73	15.0	47.1	48.4	15.4	31.8	644	24.9	13.1	9.1
19-Jul-21	1149	F	1,000	1:7 Pre-Dilution	3.69	11.02	16.1	50.6	45.9	14.6	31.8	763	25.6	14.1	8.1
19-Jul-21	1150	F	1,000	1:7 Pre-Dilution	4.86	11.21	16.2	51.0	45.5	14.5	31.8	870	22.3	12.4	8.1
19-Jul-21	1173	F	125	1:7 Pre-Dilution	6.58	9.77	14.8	46.8	47.9	15.1	31.6	965	24.0	12.9	8.1
19-Jul-21	1174	F	125	1:7 Pre-Dilution	4.06	10.99	16.2	51.4	46.8	14.7	31.5	792	24.1	12.9	7.6
19-Jul-21	1211	F	2,000	1:7 Pre-Dilution	6.26	9.34	15.6	46.8	50.1	16.7	33.3	900	24.7	12.4	8.6
19-Jul-21	1212	F	2,000	1:7 Pre-Dilution	6.43	10.11	15.1	47.9	47.4	14.9	31.5	838	23.8	12.7	8.5
19-Jul-21	1243	F	250	1:7 Pre-Dilution	4.85	10.71	15.3	49.0	45.8	14.3	31.2	1069	22.9	12.6	7.6
19-Jul-21	1244	F	250	1:7 Pre-Dilution	4.01	10.24	16.2	51.7	50.5	15.8	31.3	1347	24.3	12.2	7.0
20-Jul-21	913	M	125	1:7 Pre-Dilution	2.83	9.94	15.5	48.2	48.5	15.6	32.2	586	22.6	11.7	9.3
20-Jul-21	914	M	125	1:7 Pre-Dilution	2.12	9.94	15.3	47.7	48.0	15.4	32.1	1434	21.4	11.3	7.5
20-Jul-21	933	M	250	1:7 Pre-Dilution	6.88	9.66	14.7	45.4	47.0	15.2	32.4	1870	22.6	12.0	7.1
20-Jul-21	934	M	250	1:7 Pre-Dilution	2.20	9.67	15.2	46.6	48.2	15.7	32.6	1545	22.2	11.7	7.9
20-Jul-21	949	M	0	1:7 Pre-Dilution	3.57	9.07	13.8	44.2	48.7	15.2	31.2	1227	22.5	11.5	9.1
20-Jul-21	950	M	0	1:7 Pre-Dilution	2.10	10.74	14.7	47.2	43.9	13.7	31.1	1369	23.4	13.6	7.6
20-Jul-21	1131	F	125	1:7 Pre-Dilution	5.55	9.11	13.5	42.7	46.9	14.8	31.6	1009	23.5	12.8	8.5
20-Jul-21	1132	F	125	1:7 Pre-Dilution	4.79	10.43	15.5	49.2	47.2	14.9	31.5	993	20.8	11.0	9.0
20-Jul-21	1153	F	2,000	1:7 Pre-Dilution	5.28	10.27	16.2	51.1	49.8	15.8	31.7	648	27.9	14.2	9.4
20-Jul-21	1154	F	2,000	1:7 Pre-Dilution	6.25	9.70	14.4	44.9	46.3	14.8	32.1	1262	24.7	13.3	8.2

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20-Jul-21	1169	F	0	1:7 Pre-Dilution	4.14	9.51	14.6	46.5	48.9	15.4	31.4	971	24.2	12.3	8.6
20-Jul-21	1170	F	0	1:7 Pre-Dilution	2.61	10.63	16.2	51.0	48.0	15.2	31.8	689	24.0	12.5	8.1
20-Jul-21	1201	F	500	1:7 Pre-Dilution	4.55	9.79	15.3	49.2	50.3	15.6	31.1	708	24.9	12.5	8.5
20-Jul-21	1202	F	500	1:7 Pre-Dilution	4.17	11.41	17.1	54.0	47.3	15.0	31.7	744	22.9	12.1	7.8
20-Jul-21	1217	F	250	1:7 Pre-Dilution	8.45	10.09	15.7	49.0	48.6	15.6	32.0	960	25.0	13.0	9.5
20-Jul-21	1218	F	250	1:7 Pre-Dilution	2.87	9.51	14.4	44.4	46.7	15.1	32.4	900	25.5	13.7	8.6
20-Jul-21	1233	F	1,000	1:7 Pre-Dilution	4.89	10.50	16.9	52.1	49.6	16.1	32.4	1516	26.0	13.1	8.6
20-Jul-21	1234	F	1,000	1:7 Pre-Dilution	4.97	11.40	17.1	53.3	46.8	15.0	32.1	914	23.5	12.6	8.4
21-Jul-21	927	M	125	1:7 Pre-Dilution	3.03	10.84	16.4	52.9	48.8	15.1	31.0	1292	23.3	11.8	8.4
21-Jul-21	928	M	125	1:7 Pre-Dilution	2.97	9.75	14.5	46.4	47.6	14.9	31.3	1074	23.4	12.4	7.5
21-Jul-21	985	M	250	1:7 Pre-Dilution	8.73	10.10	15.0	49.0	48.5	14.9	30.6	1051	24.6	12.7	8.1
21-Jul-21	986	M	250	1:7 Pre-Dilution	4.55	9.65	14.6	45.8	47.5	15.1	31.9	1345	22.7	12.2	7.5
21-Jul-21	1005	M	0	1:7 Pre-Dilution	2.04	9.37	14.2	44.8	47.8	15.2	31.7	1073	23.2	12.4	8.5
21-Jul-21	1006	M	0	1:7 Pre-Dilution	4.04	9.70	15.2	46.9	48.4	15.7	32.4	1458	22.5	11.7	8.3
21-Jul-21	1245	F	0	1:7 Pre-Dilution	4.40	10.32	16.0	50.0	48.4	15.5	32.0	1060	26.2	13.7	8.7
21-Jul-21	1246	F	0	1:7 Pre-Dilution	11.43	9.52	15.1	46.7	49.1	15.9	32.3	745	25.0	12.7	8.6
21-Jul-21	1127	F	125	1:7 Pre-Dilution	4.82	9.72	14.5	46.3	47.6	14.9	31.3	543	21.0	11.2	8.0
21-Jul-21	1128	F	125	1:7 Pre-Dilution	5.10	9.35	15.1	47.8	51.1	16.1	31.6	865	26.3	12.8	7.9
21-Jul-21	1141	F	2,000	1:7 Pre-Dilution	5.76	10.46	16.2	49.7	47.5	15.5	32.6	994	25.0	13.3	7.5
21-Jul-21	1142	F	2,000	1:7 Pre-Dilution	5.29	10.90	17.1	52.8	48.4	15.7	32.4	845	23.2	11.8	7.7
21-Jul-21	1155	F	250	1:7 Pre-Dilution	5.85	9.53	14.6	45.6	47.8	15.3	32.0	1014	24.5	13.1	8.0
21-Jul-21	1156	F	250	1:7 Pre-Dilution	2.93	10.77	16.2	50.1	46.5	15.0	32.3	659	24.1	12.9	7.8
21-Jul-21	1199	F	1,000	1:7 Pre-Dilution	8.22	10.79	16.8	51.9	48.1	15.6	32.4	1090	25.6	13.3	7.9
21-Jul-21	1200	F	1,000	1:7 Pre-Dilution	8.71	10.89	18.0	56.1	51.5	16.5	32.1	964	28.6	13.8	8.3
21-Jul-21	1239	F	500	1:7 Pre-Dilution	6.57	10.19	15.8	48.1	47.2	15.5	32.8	953	22.8	12.3	8.1
21-Jul-21	1240	F	500	1:7 Pre-Dilution	2.38	10.35	15.5	48.3	46.7	15.0	32.1	254	22.1	11.9	8.9
22-Jul-21	907	M	250	1:7 Pre-Dilution	10.16	10.46	16.0	49.7	47.5	15.3	32.2	1201	22.3	11.9	8.1
22-Jul-21	908	M	250	1:7 Pre-Dilution	5.75	10.58	16.6	51.1	48.3	15.7	32.5	1214	22.1	11.5	6.8
22-Jul-21	997	M	125	1:7 Pre-Dilution	4.54	10.52	15.6	49.1	46.7	14.8	31.8	1180	22.0	12.0	8.0
22-Jul-21	998	M	125	1:7 Pre-Dilution	2.61	9.09	13.9	43.8	48.2	15.3	31.7	1214	21.6	11.5	8.8
22-Jul-21	1001	M	0	1:7 Pre-Dilution	4.38	9.86	13.8	45.2	45.8	14.0	30.5	1195	23.3	12.8	8.5
22-Jul-21	1002	M	0	1:7 Pre-Dilution	3.14	9.62	14.9	47.2	49.1	15.5	31.6	458	22.0	11.2	9.3
22-Jul-21	1161	F	500	1:7 Pre-Dilution	2.78	10.17	15.3	48.2	47.4	15.0	31.7	76	22.6	12.0	9.1
22-Jul-21	1162	F	500	1:7 Pre-Dilution	4.37	9.61	14.4	45.2	47.0	15.0	31.9	821	22.7	12.2	8.8

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22-Jul-21	1171	F	2,000	1:7 Pre-Dilution	3.45	10.33	16.1	49.6	48.0	15.6	32.5	725	22.9	11.9	8.6
22-Jul-21	1172	F	2,000	1:7 Pre-Dilution	2.29	9.80	15.4	46.6	47.6	15.7	33.0	1479	22.1	11.8	8.8
22-Jul-21	1205	F	250	1:7 Pre-Dilution	3.84	11.10	16.6	53.4	48.1	15.0	31.1	1509	23.2	12.0	8.0
22-Jul-21	1206	F	250	1:7 Pre-Dilution	6.08	12.41	17.4	54.4	43.8	14.0	32.0	703	23.9	13.7	7.4
22-Jul-21	1224	F	1,000	1:7 Pre-Dilution	3.86	9.07	14.4	45.1	49.7	15.9	31.9	1332	24.7	12.7	9.2
22-Jul-21	1225	F	1,000	1:7 Pre-Dilution	1.55	6.88	10.8	31.8	46.2	15.7	34.0	934	22.3	12.1	7.3
22-Jul-21	1226	F	125	1:7 Pre-Dilution	1.71	10.19	15.6	48.2	47.3	15.3	32.4	583	22.5	12.0	9.4
22-Jul-21	1241	F	0	1:7 Pre-Dilution	4.87	10.66	16.0	50.1	47.0	15.0	31.9	1166	21.9	11.6	9.4
22-Jul-21	1242	F	0	1:7 Pre-Dilution	2.78	9.72	15.4	47.0	48.4	15.8	32.8	1234	25.9	13.4	7.5
23-Jul-21	915	M	250	1:7 Pre-Dilution	7.85	9.86	15.1	46.2	46.9	15.3	32.7	1331	23.7	12.9	8.5
23-Jul-21	916	M	250	1:7 Pre-Dilution	7.23	9.81	14.8	47.1	48.0	15.1	31.4	1206	23.7	12.6	8.9
23-Jul-21	935	M	125	1:7 Pre-Dilution	4.08	10.92	16.1	50.3	46.1	14.7	32.0	1145	22.2	12.2	8.5
23-Jul-21	936	M	125	1:7 Pre-Dilution	4.20	9.04	13.9	45.0	49.5	15.4	30.9	1112	24.2	12.3	8.6
23-Jul-21	975	M	0	1:7 Pre-Dilution	8.88	9.01	14.4	44.9	49.8	16.0	32.1	1105	26.1	13.3	9.1
23-Jul-21	976	M	0	1:7 Pre-Dilution	8.73	9.70	14.6	46.0	47.4	15.1	31.7	1462	25.9	13.8	8.7
23-Jul-21	1227	F	0	1:7 Pre-Dilution	8.28	10.42	15.9	49.6	47.6	15.3	32.1	883	24.4	13.0	8.6
23-Jul-21	1228	F	0	1:7 Pre-Dilution	2.36	11.39	17.6	55.6	48.8	15.5	31.7	367	23.2	11.8	9.3
23-Jul-21	1143	F	1,000	1:7 Pre-Dilution	3.50	10.85	16.3	51.1	47.1	15.0	31.9	727	22.7	12.2	7.4
23-Jul-21	1144	F	1,000	1:7 Pre-Dilution	2.48	10.04	15.0	46.1	45.9	14.9	32.5	1019	25.4	13.9	8.2
23-Jul-21	1167	F	250	1:7 Pre-Dilution	2.82	10.17	16.4	48.3	47.5	16.1	34.0	747	23.5	12.8	7.7
23-Jul-21	1168	F	250	1:7 Pre-Dilution	1.78	10.82	16.3	49.9	46.1	15.1	32.7	481	24.7	13.3	8.7
23-Jul-21	1191	F	125	1:7 Pre-Dilution	2.99	10.69	16.2	48.9	45.7	15.2	33.1	1050	24.1	13.1	7.4
23-Jul-21	1192	F	125	1:7 Pre-Dilution	3.76	11.22	17.8	54.7	48.8	15.9	32.5	1492	23.9	12.1	7.2
23-Jul-21	1213	F	2,000	1:7 Pre-Dilution	6.13	10.14	15.3	47.5	46.8	15.1	32.2	994	23.7	13.1	8.0
23-Jul-21	1214	F	2,000	1:7 Pre-Dilution	3.58	9.45	14.4	46.6	49.3	15.2	30.9	920	25.6	13.0	8.3
23-Jul-21	1229	F	500	1:7 Pre-Dilution	3.81	9.76	15.6	48.1	49.3	16.0	32.4	1178	24.4	12.4	8.2
23-Jul-21	1230	F	500	1:7 Pre-Dilution	5.85	10.40	15.3	45.9	44.1	14.7	33.3	1343	20.4	11.6	6.9

Table F-22b. NFD 20-391 Hematology Data continued

ID	NRBC		NEUT		LYMPH		MONO		EO		BASO		RET		IRF	RET-He (pg)	PLT-F (K/uL)
	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(%)		
881	0.05	1.3	0.69	18.4	2.91	77.4	0.08	2.1	0.08	2.1	0.00	0.00	0.4666	4.57	59.1	18.1	1077
882	0.00	0.0	0.31	19.1	1.20	74.1	0.05	3.1	0.05	3.1	0.01	0.60	0.3339	3.22	57.2	16.9	1268
939	0.00	0.0	0.93	28.9	2.01	62.4	0.18	5.6	0.10	3.1	0.00	0.00	0.3717	3.82	53.9	17.8	1446
940	0.00	0.0	0.27	15.6	1.41	81.0	0.04	2.3	0.02	1.1	0.00	0.00	0.3096	3.02	56.5	18.6	1238
987	0.05	1.2	1.34	32.7	2.50	61.0	0.23	5.6	0.03	0.7	0.00	0.00	0.4479	4.57	67.1	17.6	1729
988	0.00	0.0	0.40	25.5	1.10	70.1	0.06	3.8	0.01	0.6	0.00	0.00	0.3775	3.86	59.7	18.1	1229
1139	0.00	0.0	0.58	11.0	4.31	82.6	0.28	5.4	0.05	1.0	0.00	0.00	0.6858	6.92	61.1	18.6	869
1140	0.03	0.4	0.83	12.3	5.50	82.0	0.20	3.0	0.18	2.7	0.00	0.00	0.4390	4.66	64.1	17.7	1039
1147	0.00	0.0	0.36	10.8	2.87	85.9	0.08	2.4	0.03	0.9	0.00	0.00	0.3817	3.67	54.9	19.0	898
1148	0.04	2.2	0.34	18.4	1.46	78.9	0.03	1.6	0.02	1.1	0.00	0.00	0.5536	5.69	64.3	19.0	644
1149	0.00	0.0	0.46	12.5	3.08	83.5	0.09	2.4	0.06	1.6	0.00	0.00	0.7681	6.97	61.2	18.5	763
1150	0.00	0.0	0.83	17.1	3.80	78.2	0.16	3.3	0.07	1.4	0.00	0.00	0.4136	3.69	55.5	17.3	870
1173	0.02	0.3	0.58	8.8	5.70	86.6	0.15	2.3	0.14	2.1	0.01	0.20	0.5842	5.98	66.5	18.9	965
1174	0.00	0.0	0.45	11.1	3.41	84.0	0.13	3.2	0.07	1.7	0.00	0.00	0.3814	3.47	58.1	17.7	792
1211	0.00	0.0	0.44	7.0	5.61	89.6	0.10	1.6	0.10	1.6	0.10	0.20	0.4110	4.40	56.6	20.6	900
1212	0.02	0.3	0.76	11.8	5.47	85.1	0.13	2.0	0.06	0.9	0.01	0.20	0.4651	4.60	56.4	18.5	838
1243	0.02	0.4	0.54	11.1	4.14	85.4	0.11	2.3	0.06	1.2	0.00	0.00	0.5409	5.05	60.4	18.0	1069
1244	0.00	0.0	0.90	22.5	2.88	71.8	0.19	4.7	0.04	1.0	0.00	0.00	0.3594	3.51	56.9	19.3	1347
913	0.00	0.0	0.36	12.7	2.37	83.7	0.07	2.5	0.02	0.7	0.01	0.40	0.3956	3.98	61.4	19.1	586
914	0.00	0.0	0.32	15.1	1.74	82.1	0.03	1.4	0.03	1.4	0.00	0.00	0.3807	3.83	54.4	18.7	1434
933	0.00	0.0	1.20	17.5	5.32	77.3	0.22	3.2	0.14	2.0	0.00	0.00	0.3787	3.92	59.9	18.3	1870
934	0.00	0.0	0.54	24.5	1.58	71.8	0.05	2.3	0.03	1.4	0.00	0.00	0.3288	3.40	56.0	18.8	1545
949	0.02	0.6	0.59	16.5	2.83	79.3	0.11	3.1	0.04	1.1	0.00	0.00	0.4009	4.42	59.2	18.6	1227
950	0.02	1.0	0.48	23.9	1.46	72.6	0.05	2.5	0.02	1.0	0.00	0.00	0.3748	3.49	53.6	17.4	1369
1131	0.02	0.4	0.52	9.4	4.53	81.6	0.44	7.9	0.05	0.9	0.01	0.20	0.2888	3.17	56.3	17.9	1009
1132	0.02	0.4	0.55	11.6	4.03	84.1	0.17	3.5	0.04	0.8	0.00	0.00	0.2722	2.61	39.8	18.4	993
1153	0.03	0.6	0.58	10.9	4.45	84.3	0.14	2.7	0.09	1.7	0.02	0.40	0.5761	5.61	61.6	19.3	648
1154	0.02	0.3	0.93	14.8	4.83	77.3	0.28	4.5	0.21	3.4	0.00	0.00	0.3424	3.53	58.6	18.4	1262

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1169	0.02	0.5	0.45	10.9	3.52	85.0	0.11	2.7	0.06	1.4	0.00	0.00	0.3500	3.68	65.4	19.4	971
1170	0.00	0.0	0.24	9.1	2.27	87.0	0.07	2.7	0.02	0.8	0.01	0.40	0.3519	3.31	58.8	18.9	689
1201	0.00	0.0	0.45	9.9	3.86	84.8	0.18	4.0	0.06	1.3	0.00	0.00	0.2751	2.81	53.4	19.1	708
1202	0.00	0.0	0.45	10.7	3.44	82.5	0.19	4.6	0.09	2.2	0.00	0.00	0.4165	3.65	58.2	18.2	744
1217	0.02	0.2	0.90	10.6	7.30	86.4	0.14	1.7	0.11	1.3	0.00	0.00	0.5701	5.65	62.5	18.9	960
1218	0.02	0.7	0.58	20.2	2.16	75.3	0.10	3.5	0.03	1.0	0.00	0.00	0.3861	4.06	58.4	18.3	900
1233	0.00	0.0	0.69	14.1	3.90	79.8	0.24	4.9	0.06	1.2	0.00	0.00	0.5450	5.19	55.6	19.0	1516
1234	0.02	0.4	0.42	8.5	4.35	87.5	0.12	2.4	0.06	1.2	0.02	0.40	0.4640	4.07	59.1	18.1	914
927	0.00	0.0	0.42	13.8	2.49	82.2	0.10	3.3	0.02	0.7	0.00	0.00	0.3978	3.67	53.2	18.3	1292
928	0.03	1.0	0.44	14.8	2.42	81.5	0.07	2.4	0.04	1.3	0.00	0.00	0.3617	3.71	57.5	18.1	1074
985	0.00	0.0	0.87	10.0	7.29	83.5	0.42	4.8	0.15	1.7	0.00	0.00	0.3596	3.56	53.7	17.8	1051
986	0.02	0.4	0.98	21.5	3.39	74.5	0.15	3.3	0.03	0.7	0.00	0.00	0.3937	4.08	49.3	18.3	1345
1005	0.00	0.0	0.52	25.6	1.40	68.6	0.06	2.9	0.06	2.9	0.00	0.00	0.3757	4.01	61.3	18.1	1073
1006	0.00	0.0	0.94	23.3	2.89	71.5	0.15	3.7	0.06	1.5	0.00	0.00	0.3725	3.84	54.6	18.5	1458
1245	0.00	0.0	0.48	10.9	3.70	84.1	0.18	4.1	0.04	0.9	0.00	0.00	0.6275	6.08	54.6	19.2	1060
1246	0.02	0.2	1.19	10.4	9.93	86.9	0.21	1.8	0.09	0.8	0.01	0.10	0.4474	4.70	60.0	19.1	745
1127	0.00	0.0	0.34	7.0	4.26	88.4	0.09	1.9	0.11	2.3	0.02	0.40	0.4403	4.53	63.7	18.7	543
1128	0.00	0.0	0.66	12.9	4.18	82.0	0.23	4.5	0.03	0.6	0.00	0.00	0.3226	3.45	63.4	19.3	865
1141	0.00	0.0	0.70	12.2	4.87	84.5	0.12	2.1	0.07	1.2	0.00	0.00	0.3996	3.82	49.6	18.9	994
1142	0.00	0.0	0.40	7.6	4.72	89.2	0.09	1.7	0.07	1.3	0.01	0.20	0.3270	3.00	44.4	18.8	845
1155	0.00	0.0	0.72	12.3	4.91	83.9	0.08	1.4	0.14	2.4	0.00	0.00	0.5242	5.50	61.5	18.9	1014
1156	0.00	0.0	0.27	9.2	2.56	87.4	0.09	3.1	0.01	0.3	0.00	0.00	0.5234	4.86	59.4	18.7	659
1199	0.02	0.2	0.57	7.0	7.27	88.4	0.31	3.8	0.05	0.6	0.02	0.20	0.5330	4.94	59.6	19.0	1090
1200	0.00	0.0	0.70	8.4	7.65	87.8	0.22	2.5	0.11	1.3	0.00	0.00	0.2821	2.59	54.9	19.7	964
1239	0.00	0.0	1.43	21.7	4.86	74.0	0.18	2.7	0.09	1.4	0.01	0.20	0.3067	3.01	55.6	18.6	953
1240	0.00	0.0	0.25	10.5	1.97	82.8	0.05	2.1	0.11	4.6	0.00	0.00	0.4419	4.27	54.4	18.1	254
907	0.00	0.0	2.82	27.8	6.91	68.0	0.38	3.7	0.05	0.5	0.00	0.00	0.4561	4.36	55.7	18.6	1201
908	0.00	0.0	0.73	12.7	4.84	84.2	0.14	2.4	0.04	0.7	0.00	0.00	0.3587	3.39	54.9	18.9	1214
997	0.00	0.0	0.80	17.6	3.61	79.5	0.08	1.8	0.05	1.1	0.00	0.00	0.4376	4.16	58.0	17.8	1180
998	0.00	0.0	0.71	27.2	1.79	68.6	0.10	3.8	0.01	0.4	0.00	0.00	0.3618	3.98	54.7	18.8	1214
1001	0.00	0.0	0.35	8.0	3.95	90.2	0.07	1.6	0.01	0.2	0.00	0.00	0.3569	3.62	57.8	17.4	1195
1002	0.00	0.0	0.32	10.3	2.72	86.6	0.07	2.2	0.02	0.6	0.01	0.30	0.4310	4.48	58.7	18.9	458
1161	0.00	0.0	0.22	7.9	2.31	83.1	0.07	2.5	0.18	6.5	0.00	0.00	0.2776	2.73	53.0	18.9	76
1162	0.02	0.5	0.38	8.6	3.73	85.4	0.13	3.0	0.13	3.0	0.00	0.00	0.3421	3.56	60.8	18.2	821

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1171	0.00	0.0	0.55	15.9	2.72	78.8	0.14	4.1	0.04	1.2	0.00	0.00	0.3388	3.28	59.8	19.3	725
1172	0.00	0.0	0.77	33.6	1.42	62.0	0.05	2.2	0.05	2.2	0.00	0.00	0.2646	2.70	50.8	18.9	1479
1205	0.00	0.0	0.81	21.1	2.83	73.7	0.15	3.9	0.05	1.3	0.00	0.00	0.2886	2.60	32.9	17.9	1509
1206	0.00	0.0	0.32	5.2	5.58	91.8	0.10	1.6	0.07	1.2	0.01	0.20	0.3438	2.77	42.0	16.8	703
1224	0.00	0.0	0.45	11.7	3.23	83.7	0.14	3.6	0.04	1.0	0.00	0.00	0.2721	3.00	64.1	19.2	1332
1225	0.02	1.3	0.24	15.5	1.26	81.3	0.02	1.3	0.02	1.3	0.01	0.60	0.2112	3.07	56.9	18.7	934
1226	0.03	1.8	0.26	15.2	1.35	78.9	0.07	4.1	0.02	1.2	0.01	0.60	0.3668	3.60	58.4	19.0	583
1241	0.00	0.0	0.93	19.1	3.59	73.7	0.11	2.3	0.24	4.9	0.00	0.00	0.3912	3.67	47.8	18.2	1166
1242	0.00	0.0	0.86	31.0	1.71	61.5	0.19	6.8	0.02	0.7	0.00	0.00	0.3072	3.16	61.3	18.8	1234
915	0.05	0.6	1.59	20.2	6.00	76.4	0.13	1.7	0.13	1.7	0.00	0.00	0.4565	4.63	61.8	18.7	1331
916	0.03	0.4	1.49	20.6	5.34	73.9	0.18	2.5	0.22	3.0	0.00	0.00	0.4326	4.41	62.5	18.7	1206
935	0.02	0.5	1.04	25.5	2.63	64.5	0.32	7.8	0.09	2.2	0.00	0.00	0.4554	4.17	59.5	17.9	1145
936	0.00	0.0	0.79	18.8	3.18	75.7	0.15	3.6	0.07	1.7	0.01	0.20	0.3309	3.66	58.1	18.5	1112
975	0.02	0.2	1.97	22.2	6.53	73.5	0.23	2.6	0.14	1.6	0.01	0.10	0.4027	4.47	61.8	19.2	1105
976	0.08	0.9	1.76	20.2	6.35	72.7	0.48	5.5	0.14	1.6	0.00	0.00	0.3463	3.57	63.0	18.8	1462
1227	0.00	0.0	0.51	6.1	7.54	91.1	0.13	1.6	0.09	1.1	0.01	0.10	0.3814	3.66	65.3	18.7	883
1228	0.02	0.8	0.24	10.2	1.99	84.3	0.03	1.3	0.09	3.8	0.01	0.40	0.4898	4.30	59.7	18.7	367
1143	0.02	0.6	0.45	12.9	2.87	82.0	0.11	3.1	0.07	2.0	0.00	0.00	0.4492	4.14	58.1	18.4	727
1144	0.00	0.0	0.34	13.8	1.96	79.0	0.12	4.8	0.05	2.0	0.01	0.40	0.3956	3.94	66.5	17.7	1019
1167	0.00	0.0	0.29	10.3	2.40	85.1	0.05	1.8	0.08	2.8	0.00	0.00	0.3549	3.49	64.0	19.8	747
1168	0.00	0.0	0.16	9.0	1.55	87.1	0.04	2.2	0.02	1.1	0.01	0.60	0.5583	5.16	57.0	18.5	481
1191	0.00	0.0	0.85	28.4	1.99	66.6	0.10	3.3	0.05	1.7	0.00	0.00	0.3742	3.50	43.0	18.2	1050
1192	0.00	0.0	0.51	13.5	3.06	81.4	0.12	3.2	0.06	1.6	0.01	0.30	0.2345	2.09	46.2	19.2	1492
1213	0.05	0.8	0.98	16.0	4.83	78.8	0.16	2.6	0.16	2.6	0.00	0.00	0.6763	6.67	67.1	18.9	994
1214	0.02	0.6	0.65	18.2	2.75	76.8	0.13	3.6	0.05	1.4	0.00	0.00	0.3383	3.58	57.1	18.4	920
1229	0.00	0.0	0.51	13.4	3.14	82.4	0.09	2.4	0.07	1.8	0.00	0.00	0.3094	3.17	52.2	18.8	1178
1230	0.00	0.0	0.80	13.7	4.75	81.2	0.19	3.2	0.11	1.9	0.00	0.00	0.4212	4.05	51.2	18.0	1343

Table F-23a. NRL 502W Hematology Data

Date	ID	Sex	Dose (mg/L)	Sample Type	WBC (K/uL)	RBC (M/uL)	HGB (g/dL)	HCT (%)	MCV (fL)	MCH (pg)	MCHC (g/dL)	PLT (K/uL)	RDW-SD (fL)	RDW-CV (%)	MPV (fL)
24-May-21	545	M	125	1:7 Pre-Dilution	6.41	9.93	15.4	48.8	49.1	15.5	31.6	1293	23.2	11.7	8.2
24-May-21	546	M	125	1:7 Pre-Dilution	6.37	9.95	15.0	49.5	49.7	15.1	30.3	1442	24.7	12.6	7.1
24-May-21	569	M	250	1:7 Pre-Dilution	6.44	8.55	13.6	42.6	49.8	15.9	31.9	1177	22.7	11.6	7.4
24-May-21	570	M	250	1:7 Pre-Dilution	3.82	10.40	15.6	48.8	46.9	15.0	32.0	1565	22.2	12.0	6.8
24-May-21	577	M	0	1:7 Pre-Dilution	6.84	10.58	16.6	51.2	48.4	15.7	32.4	1064	22.0	11.4	7.4
24-May-21	578	M	0	1:7 Pre-Dilution	6.09	10.37	15.5	48.8	47.1	14.9	31.8	1278	23.3	12.6	7.6
24-May-21	631	F	2,000	1:7 Pre-Dilution	9.50	9.47	15.1	47.9	50.6	15.9	31.5	896	25.6	12.6	9.5
24-May-21	632	F	2,000	1:7 Pre-Dilution	7.90	9.59	14.4	45.9	47.9	15.0	31.4	978	24.0	12.4	7.4
24-May-21	637	F	500	1:7 Pre-Dilution	9.43	10.09	15.7	48.5	48.1	15.6	32.4	980	23.6	12.4	9.0
24-May-21	638	F	500	1:7 Pre-Dilution	3.94	10.91	16.6	49.4	45.3	15.2	33.6	933	22.7	12.6	6.8
24-May-21	673	F	125	1:7 Pre-Dilution	4.28	9.29	14.1	45.1	48.5	15.2	31.3	1068	26.6	14.0	8.4
24-May-21	674	F	125	1:7 Pre-Dilution	5.78	10.32	15.6	49.0	47.5	15.1	31.8	1126	25.0	13.4	8.6
24-May-21	689	F	0	1:7 Pre-Dilution	3.58	11.31	17.3	55.4	49.0	15.3	31.2	874	24.9	12.8	8.4
24-May-21	690	F	0	1:7 Pre-Dilution	3.49	9.14	14.3	45.1	49.3	15.6	31.7	1303	26.8	13.9	7.7
24-May-21	695	F	1,000	1:7 Pre-Dilution	7.72	9.46	15.2	46.2	48.8	16.1	32.9	1271	23.5	11.9	7.9
24-May-21	696	F	1,000	1:7 Pre-Dilution	4.57	9.98	16.0	49.5	49.6	16.0	32.3	976	24.1	12.2	8.2
24-May-21	707	F	250	1:7 Pre-Dilution	4.48	9.93	15.0	48.3	48.6	15.1	31.1	1195	26.2	13.7	8.1
24-May-21	708	F	250	1:7 Pre-Dilution	4.01	9.66	15.9	51.1	52.9	16.5	31.1	1462	26.0	12.3	7.9
25-May-21	573	M	125	1:7 Pre-Dilution	8.11	10.30	15.2	47.3	45.9	14.8	32.1	1223	20.3	11.3	8.2
25-May-21	574	M	125	1:7 Pre-Dilution	2.47	9.62	15.2	44.7	46.5	15.8	34.0	1172	23.8	12.9	6.8
25-May-21	581	M	250	1:7 Pre-Dilution	3.00	10.82	16.0	49.7	45.9	14.8	32.2	1116	22.3	12.0	7.3
25-May-21	582	M	250	1:7 Pre-Dilution	4.84	9.12	14.1	43.9	48.1	15.5	32.1	1120	25.5	13.4	7.3
25-May-21	589	M	0	1:7 Pre-Dilution	4.62	11.24	17.2	53.9	48.0	15.3	31.9	1062	22.6	11.9	8.4
25-May-21	590	M	0	1:7 Pre-Dilution	2.44	12.00	17.4	55.9	46.6	14.5	31.1	1258	21.8	11.7	8.2
25-May-21	623	F	125	1:7 Pre-Dilution	5.65	9.27	14.8	45.8	49.4	16.0	32.3	1431	24.4	12.3	7.7
25-May-21	624	F	125	1:7 Pre-Dilution	2.81	9.16	14.6	44.8	48.9	15.9	32.6	1089	26.1	13.7	7.6
25-May-21	677	F	2,000	1:7 Pre-Dilution	5.06	10.78	16.7	51.7	48.0	15.5	32.3	683	26.8	13.9	7.5
25-May-21	678	F	2,000	1:7 Pre-Dilution	8.45	9.93	16.4	48.9	49.2	16.5	33.5	1042	24.2	12.3	6.8

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25-May-21	679	F	500	1:7 Pre-Dilution	4.08	9.74	15.3	48.3	49.6	15.7	31.7	1200	23.5	12.0	8.4
25-May-21	680	F	500	1:7 Pre-Dilution	3.91	10.05	15.2	49.8	49.6	15.1	30.5	845	25.7	13.1	8.0
25-May-21	693	F	1,000	1:7 Pre-Dilution	5.82	10.09	15.3	48.4	48.0	15.2	31.6	967	27.0	14.1	7.6
25-May-21	694	F	1,000	1:7 Pre-Dilution	7.06	11.19	17.2	54.1	48.3	15.4	31.8	914	23.6	12.2	7.9
25-May-21	697	F	0	1:7 Pre-Dilution	5.71	9.67	15.3	47.4	49.0	15.8	32.3	1055	27.8	14.3	7.3
25-May-21	698	F	0	1:7 Pre-Dilution	5.76	8.73	14.6	47.3	54.2	16.7	30.9	919	28.4	13.2	7.9
25-May-21	705	F	250	1:7 Pre-Dilution	8.05	10.63	17.0	52.7	49.6	16.0	32.3	985	22.7	11.6	9.0
25-May-21	706	F	250	1:7 Pre-Dilution	7.84	10.03	16.3	50.2	50.0	16.3	32.5	1481	28.1	14.1	7.6
26-May-21	505	M	250	1:7 Pre-Dilution	11.65	10.12	15.1	47.0	46.4	14.9	32.1	1448	22.7	12.3	7.7
26-May-21	549	M	125	1:7 Pre-Dilution	5.89	9.81	14.3	44.6	45.5	14.6	32.1	1331	22.3	12.4	7.0
26-May-21	550	M	125	1:7 Pre-Dilution	3.89	8.14	12.3	38.4	47.2	15.1	32.0	40	22.5	12.2	7.3
26-May-21	611	M	0	1:7 Pre-Dilution	4.01	9.75	14.9	46.2	47.4	15.3	32.3	1168	21.8	11.6	8.0
26-May-21	612	M	0	1:7 Pre-Dilution	7.20	10.47	15.1	48.5	46.3	14.4	31.1	1314	22.5	12.2	6.8
26-May-21	633	F	0	1:7 Pre-Dilution	6.46	10.90	16.2	50.1	46.0	14.9	32.3	1234	23.3	12.6	8.1
26-May-21	635	F	250	1:7 Pre-Dilution	9.54	10.57	16.1	48.7	46.1	15.2	33.1	1439	22.2	12.2	7.8
26-May-21	636	F	250	1:7 Pre-Dilution	13.55	9.97	16.2	50.5	50.7	16.2	32.1	1161	23.5	11.8	7.7
26-May-21	639	F	125	1:7 Pre-Dilution	8.52	10.65	17.2	51.9	48.7	16.2	33.1	1229	22.6	11.5	7.5
26-May-21	640	F	125	1:7 Pre-Dilution	8.18	9.28	15.3	45.8	49.4	16.5	33.4	1296	23.6	12.0	7.0
26-May-21	687	F	2,000	1:7 Pre-Dilution	9.88	10.63	16.0	50.7	47.7	15.1	31.6	1120	23.0	12.2	7.2
26-May-21	688	F	2,000	1:7 Pre-Dilution	3.61	9.31	14.4	44.2	47.5	15.5	32.6	1182	25.7	13.5	7.6
26-May-21	701	F	1,000	1:7 Pre-Dilution	7.48	10.60	15.8	49.1	46.3	14.9	32.2	1046	22.3	12.1	7.9
26-May-21	702	F	1,000	1:7 Pre-Dilution	5.57	10.06	16.4	49.5	49.2	16.3	33.1	1165	23.6	12.1	8.1
26-May-21	719	F	500	1:7 Pre-Dilution	10.33	9.71	15.5	46.9	48.3	16.0	33.0	1364	24.7	12.9	7.3
26-May-21	720	F	500	1:7 Pre-Dilution	4.38	10.02	15.5	48.4	48.3	15.5	32.0	1133	27.5	14.4	7.4
27-May-21	497	M	250	1:7 Pre-Dilution	4.34	10.56	16.4	52.4	49.6	15.5	31.3	978	24.4	12.4	8.5
27-May-21	498	M	250	1:7 Pre-Dilution	3.50	9.38	14.3	45.8	48.8	15.2	31.2	1142	22.9	11.7	8.2
27-May-21	537	M	0	1:7 Pre-Dilution	4.49	10.30	16.0	50.7	49.2	15.5	31.6	1311	23.3	11.8	7.5
27-May-21	538	M	0	1:7 Pre-Dilution	3.50	10.62	15.4	48.7	45.9	14.5	31.6	1218	23.2	12.5	7.9
27-May-21	575	M	125	1:7 Pre-Dilution	5.49	9.69	15.2	48.4	49.9	15.7	31.4	1242	23.6	11.9	8.5
27-May-21	576	M	125	1:7 Pre-Dilution	2.92	10.58	16.2	52.2	49.3	15.3	31.0	929	22.5	11.4	9.1
27-May-21	669	F	2,000	1:7 Pre-Dilution	6.04	11.92	18.2	54.0	45.3	15.3	33.7	1420	24.1	13.6	6.6
27-May-21	670	F	2,000	1:7 Pre-Dilution	9.02	10.11	16.0	47.2	46.7	15.8	33.9	1238	21.9	11.9	6.8
27-May-21	691	F	500	1:7 Pre-Dilution	8.20	9.93	16.0	47.5	47.8	16.1	33.7	1394	22.7	11.9	7.0
27-May-21	692	F	500	1:7 Pre-Dilution	5.80	9.76	15.8	48.6	49.8	16.2	32.5	1087	23.9	12.1	7.4

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27-May-21	703	F	125	1:7 Pre-Dilution	11.17	10.62	15.9	50.6	47.6	15.0	31.4	1141	22.4	11.9	8.1
27-May-21	704	F	125	1:7 Pre-Dilution	7.35	9.98	15.5	49.7	49.8	15.5	31.2	604	25.9	13.0	9.0
27-May-21	711	F	1,000	1:7 Pre-Dilution	10.68	9.72	15.9	49.6	51.0	16.4	32.1	1139	26.0	12.7	8.1
27-May-21	712	F	1,000	1:7 Pre-Dilution	9.96	10.44	16.4	50.1	48.0	15.7	32.7	1299	23.6	12.3	8.1
27-May-21	727	F	250	1:7 Pre-Dilution	8.67	10.71	16.5	51.3	47.9	15.4	32.2	1129	26.3	13.6	8.7
27-May-21	728	F	250	1:7 Pre-Dilution	9.88	9.92	14.8	46.8	47.2	14.9	31.6	1078	23.3	12.6	8.7
27-May-21	733	F	0	1:7 Pre-Dilution	3.43	9.35	14.8	47.6	50.9	15.8	31.1	966	27.0	13.4	9.0
27-May-21	734	F	0	1:7 Pre-Dilution	5.89	9.06	14.0	42.9	47.4	15.5	32.6	989	25.2	13.5	7.1
28-May-21	523	M	125	1:7 Pre-Dilution	4.39	9.89	15.8	48.9	49.4	16.0	32.3	830	25.6	13.0	8.7
28-May-21	524	M	125	1:7 Pre-Dilution	2.91	10.39	15.7	51.1	49.2	15.1	30.7	1152	23.8	12.2	8.6
28-May-21	555	M	250	1:7 Pre-Dilution	5.50	9.61	13.7	44.5	46.3	14.3	30.8	1204	23.0	12.4	7.5
28-May-21	556	M	250	1:7 Pre-Dilution	3.14	9.48	15.2	49.0	51.7	16.0	31.0	1256	25.6	12.3	8.3
28-May-21	591	M	0	1:7 Pre-Dilution	4.34	10.85	15.9	51.3	47.3	14.7	31.0	1121	22.4	11.9	7.9
28-May-21	592	M	0	1:7 Pre-Dilution	6.31	11.48	17.0	54.9	47.8	14.8	31.0	1126	21.5	11.3	8.4
28-May-21	645	F	500	1:7 Pre-Dilution	5.75	9.13	14.7	45.7	50.1	16.1	32.2	1119	24.1	12.2	7.7
28-May-21	646	F	500	1:7 Pre-Dilution	4.31	9.25	14.5	44.3	47.9	15.7	32.7	1211	26.3	13.9	8.7
28-May-21	653	F	2,000	1:7 Pre-Dilution	3.09	9.44	15.2	47.3	50.1	16.1	32.1	575	27.2	13.6	9.3
28-May-21	654	F	2,000	1:7 Pre-Dilution	5.92	9.41	14.9	46.5	49.4	15.8	32.0	1312	25.6	12.9	7.2
28-May-21	667	F	1,000	1:7 Pre-Dilution	11.31	10.82	17.0	53.3	49.3	15.7	31.9	1071	24.1	12.3	7.4
28-May-21	668	F	1,000	1:7 Pre-Dilution	6.62	9.40	14.8	45.2	48.1	15.7	32.7	1146	23.6	12.5	8.7
28-May-21	685	F	0	1:7 Pre-Dilution	3.81	10.11	16.1	50.9	50.3	15.9	31.6	930	23.5	11.7	9.0
28-May-21	686	F	0	1:7 Pre-Dilution	7.57	11.34	17.8	55.3	48.8	15.7	32.2	1087	24.3	12.3	8.2
28-May-21	709	F	125	1:7 Pre-Dilution	9.96	9.82	15.3	47.0	47.9	15.6	32.6	1060	26.1	13.6	8.2
28-May-21	710	F	125	1:7 Pre-Dilution	4.91	9.68	14.8	45.9	47.4	15.3	32.2	1068	24.6	13.1	8.1
28-May-21	715	F	250	1:7 Pre-Dilution	7.47	10.75	15.8	49.9	46.4	14.7	31.7	1022	22.9	12.4	8.0
28-May-21	716	F	250	1:7 Pre-Dilution	4.61	10.06	15.9	49.1	48.8	15.8	32.4	955	24.4	12.4	7.8

Table F-23b. NRL 20-391 Hematology Data continued

ID	NRBC		NEUT		LYMPH		MONO		EO		BASO		RET		IRF	RET-He (pg)	PLT-F (K/uL)
	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(%)		
545	0.00	0.0	1.01	15.7	5.19	81.0	0.10	1.6	0.11	1.7	0.00	0.0	0.3495	3.52	50.1	18.6	1293
546	0.03	0.5	1.87	29.3	4.23	66.4	0.23	3.6	0.03	0.5	0.01	0.2	0.3751	3.77	58.0	17.8	1442
569	0.00	0.0	0.41	6.4	5.87	91.1	0.11	1.7	0.04	0.6	0.01	0.2	0.2916	3.41	55.3	18.2	1177
570	0.00	0.0	0.55	14.4	3.18	83.2	0.06	1.6	0.03	0.8	0.00	0.0	0.4295	4.13	57.4	17.7	1565
577	0.04	0.6	1.43	21.0	5.18	75.7	0.19	2.8	0.03	0.4	0.01	0.1	0.3798	3.59	54.3	18.9	1064
578	0.05	0.8	1.52	25.0	4.35	71.4	0.09	1.5	0.13	2.1	0.00	0.0	0.4293	4.14	50.3	18.1	1278
631	0.02	0.2	1.39	14.7	7.78	81.9	0.24	2.5	0.08	0.8	0.01	0.1	0.3655	3.86	58.8	19.1	896
632	0.04	0.5	0.62	7.9	7.08	89.6	0.14	1.8	0.05	0.6	0.04	0.1	0.3817	3.98	54.9	18.2	978
637	0.00	0.0	1.56	16.5	7.49	79.4	0.27	2.9	0.11	1.2	0.00	0.0	0.2401	2.38	57.8	19.1	980
638	0.00	0.0	0.54	13.7	3.22	81.7	0.09	2.3	0.09	2.3	0.00	0.0	0.4582	4.20	60.2	18.4	933
673	0.04	0.9	0.49	11.4	3.44	80.4	0.23	5.4	0.11	2.6	0.01	0.2	0.7051	7.59	61.8	18.7	1068
674	0.00	0.0	0.60	10.3	4.90	84.8	0.16	2.8	0.11	1.9	0.01	0.2	0.3849	3.73	56.8	18.3	1126
689	0.03	0.8	0.25	6.9	3.15	88.0	0.07	2.0	0.10	2.8	0.01	0.3	0.6028	5.33	57.0	18.8	874
690	0.02	0.6	0.24	6.9	3.03	86.8	0.18	5.2	0.04	1.1	0.00	0.0	0.4945	5.41	60.0	18.6	1303
695	0.00	0.0	0.50	6.5	6.97	90.3	0.11	1.4	0.14	1.8	0.00	0.0	0.3519	3.72	55.7	19.2	1271
696	0.00	0.0	0.37	8.0	3.96	86.7	0.15	3.3	0.09	2.0	0.00	0.0	0.2725	2.73	60.5	19.2	976
707	0.00	0.0	0.47	10.5	3.82	85.3	0.14	3.1	0.05	1.1	0.00	0.0	0.4955	4.99	59.4	18.3	1195
708	0.03	0.7	0.34	8.5	3.50	87.3	0.13	3.2	0.04	1.0	0.00	0.0	0.4666	4.83	54.1	19.3	1462
573	0.02	0.2	1.20	14.8	6.58	81.1	0.21	2.6	0.12	1.5	0.00	0.0	0.3533	3.43	51.6	17.9	1223
574	0.04	1.6	0.99	40.1	1.39	56.3	0.07	2.8	0.01	0.4	0.01	0.4	0.3146	3.27	51.8	18.5	1172
581	0.00	0.0	0.33	11.0	2.55	85.0	0.07	2.3	0.05	1.7	0.00	0.0	0.4057	3.75	56.5	17.8	1116
582	0.02	0.4	1.29	26.7	3.34	69.0	0.16	3.3	0.05	1.0	0.00	0.0	0.4159	4.56	58.8	18.4	1120
589	0.00	0.0	0.71	15.3	3.76	81.4	0.10	2.2	0.05	1.1	0.00	0.0	0.4687	4.17	56.9	18.5	1062
590	0.00	0.0	0.35	14.4	2.04	83.6	0.02	0.8	0.03	1.2	0.00	0.0	0.3492	2.91	48.7	18.0	1258
623	0.00	0.0	0.65	11.5	4.65	82.3	0.28	5.0	0.07	1.2	0.00	0.0	0.2660	2.87	48.2	19.0	1431
624	0.00	0.0	0.36	12.8	2.18	77.6	0.23	8.2	0.04	1.4	0.00	0.0	0.4928	5.38	56.6	19.2	1089
677	0.00	0.0	0.66	13.0	4.17	82.4	0.18	3.6	0.05	1.0	0.00	0.0	0.4646	4.31	58.2	19.2	683
678	0.05	0.6	1.66	19.7	6.56	77.6	0.11	1.3	0.11	1.3	0.01	0.1	0.5759	5.80	59.8	19.6	1042

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679	0.00	0.0	0.46	11.3	3.42	83.8	0.11	2.7	0.08	2.0	0.01	0.2	0.1967	2.02	38.7	18.8	1200
680	0.00	0.0	0.18	4.5	3.58	91.6	0.11	2.8	0.03	0.8	0.01	0.3	0.5548	5.52	58.1	18.6	845
693	0.02	0.3	0.40	6.8	5.16	88.7	0.17	2.9	0.08	1.4	0.01	0.2	0.3229	3.20	51.5	18.6	967
694	0.00	0.0	0.70	10.0	6.02	85.3	0.27	3.8	0.06	0.8	0.01	0.1	0.4196	3.75	49.8	18.9	914
697	0.02	0.4	0.44	7.7	4.78	83.7	0.33	5.8	0.15	2.6	0.01	0.2	0.5135	5.31	60.3	18.8	1055
698	0.00	0.0	0.54	9.4	5.00	86.8	0.18	3.1	0.04	0.7	0.00	0.0	0.3990	4.57	56.6	20.6	919
705	0.00	0.0	0.76	9.5	7.09	88.1	0.10	1.2	0.10	1.2	0.00	0.0	0.3285	3.09	36.1	18.3	985
706	0.00	0.0	1.61	20.5	5.84	74.5	0.28	3.6	0.10	1.3	0.01	0.1	0.2417	2.41	36.9	17.9	1481
505	0.00	0.0	5.15	44.2	5.87	50.4	0.57	4.9	0.06	0.5	0.00	0.0	0.3724	3.68	49.5	17.8	1448
549	0.00	0.0	1.05	17.8	4.71	80.0	0.09	1.5	0.04	0.7	0.00	0.0	0.3796	3.87	51.2	17.6	1331
550	0.00	0.0	0.34	8.8	3.37	86.6	0.09	2.3	0.09	2.3	0.00	0.0	0.3484	4.28	55.6	18.4	40
611	0.02	0.5	0.52	13.0	3.38	84.3	0.06	1.5	0.05	1.2	0.00	0.0	0.3685	3.78	54.1	18.9	1168
612	0.04	0.6	1.44	20.0	5.58	77.5	0.15	2.1	0.02	0.3	0.01	0.1	0.3445	3.29	57.4	17.9	1314
633	0.00	0.0	0.80	12.4	5.40	83.6	0.18	2.8	0.08	1.2	0.00	0.0	0.3553	3.26	49.9	18.0	1234
635	0.00	0.0	1.42	14.9	7.56	79.2	0.43	4.5	0.12	1.3	0.01	0.1	0.1374	1.30	46.0	18.4	1439
636	0.00	0.0	2.15	15.8	11.14	82.2	0.17	1.3	0.08	0.6	0.01	0.1	0.4267	4.28	57.1	19.8	1161
639	0.00	0.0	1.28	15.0	6.89	80.9	0.15	1.8	0.20	2.3	0.00	0.0	0.4292	4.03	56.5	19.5	1229
640	0.00	0.0	1.01	12.4	6.70	81.9	0.22	2.7	0.24	2.9	0.01	0.1	0.3480	3.75	46.9	19.7	1296
687	0.02	0.2	0.79	8.0	8.75	88.6	0.21	2.1	0.13	1.3	0.00	0.0	0.3997	3.76	57.0	18.9	1120
688	0.03	0.8	0.68	18.9	2.74	75.9	0.11	3.0	0.08	2.2	0.00	0.0	0.3370	3.62	61.2	19.0	1182
701	0.00	0.0	0.97	13.0	6.24	83.4	0.15	2.0	0.11	1.5	0.01	0.1	0.3625	3.42	55.1	18.2	1046
702	0.00	0.0	0.64	11.6	4.57	82.0	0.22	3.9	0.14	2.5	0.00	0.0	0.3481	3.46	59.7	19.4	1165
719	0.00	0.0	1.78	17.2	8.24	79.8	0.25	2.4	0.06	0.6	0.00	0.0	0.3573	3.68	64.5	19.8	1364
720	0.04	0.9	0.38	8.7	3.86	88.1	0.08	1.8	0.06	1.4	0.00	0.0	0.6944	6.93	65.6	19.6	1133
497	0.02	0.5	0.45	10.4	3.62	83.4	0.11	2.5	0.15	3.5	0.01	0.2	0.3136	2.97	52.5	18.6	978
498	0.02	0.6	0.23	6.5	3.21	91.7	0.03	0.9	0.03	0.9	0.00	0.0	0.3855	4.11	56.0	18.1	1142
537	0.02	0.4	0.58	13.0	3.71	82.6	0.11	2.4	0.09	2.0	0.00	0.0	0.3358	3.26	53.7	18.5	1311
538	0.00	0.0	0.83	23.7	2.56	73.1	0.08	2.3	0.03	0.9	0.00	0.0	0.4025	3.79	55.0	17.7	1218
575	0.03	0.5	0.89	16.2	4.49	81.8	0.08	1.5	0.03	0.5	0.00	0.0	0.3808	3.93	54.6	18.9	1242
576	0.02	0.7	0.63	21.7	2.22	76.0	0.05	1.7	0.01	0.3	0.01	0.3	0.4782	4.52	54.3	18.8	929
669	0.02	0.3	0.80	13.2	4.81	79.6	0.10	1.7	0.33	5.5	0.00	0.0	0.3111	2.61	50.9	18.5	1420
670	0.00	0.0	1.47	16.4	7.10	78.7	0.13	1.4	0.32	3.5	0.00	0.0	0.3682	3.82	58.4	18.6	1238
691	0.02	0.2	0.81	9.8	6.97	85.0	0.21	2.6	0.21	2.6	0.00	0.0	0.2463	2.48	50.1	19.1	1394
692	0.02	0.3	0.74	12.8	4.89	84.3	0.10	1.7	0.07	1.2	0.00	0.0	0.3972	4.07	61.0	19.4	1087

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703	0.02	0.2	1.40	12.5	9.08	81.3	0.21	1.9	0.47	4.2	0.01	0.1	0.5533	5.21	58.0	19.0	1141
704	0.00	0.0	0.64	8.8	6.42	87.3	0.23	3.1	0.04	0.5	0.02	0.3	0.3403	3.41	54.5	18.7	604
711	0.00	0.0	0.89	8.3	9.47	88.7	0.28	2.6	0.04	0.4	0.00	0.0	0.3538	3.64	59.7	19.6	1139
712	0.00	0.0	1.10	11.1	8.21	82.4	0.35	3.5	0.30	3.0	0.00	0.0	0.3748	3.59	51.4	19.3	1299
727	0.02	0.2	1.21	13.9	7.12	82.1	0.24	2.8	0.10	1.2	0.00	0.0	0.5226	4.88	59.9	18.1	1129
728	0.03	0.3	0.92	9.4	8.60	87.0	0.27	2.7	0.08	0.8	0.01	0.1	0.4524	4.56	59.7	17.8	1078
733	0.02	0.6	0.35	10.3	2.81	81.9	0.19	5.5	0.08	2.3	0.00	0.0	0.6068	6.49	58.8	19.2	966
734	0.00	0.0	0.44	7.5	5.37	91.2	0.05	0.8	0.03	0.5	0.00	0.0	0.4285	4.73	60.8	18.7	989
523	0.00	0.0	0.83	18.9	3.30	75.2	0.10	2.3	0.12	2.7	0.04	0.9	0.3907	3.95	54.2	19.1	830
524	0.04	1.4	0.54	18.6	2.25	77.3	0.08	2.7	0.02	0.7	0.02	0.7	0.4021	3.87	55.0	18.3	1152
555	0.02	0.4	1.06	19.2	4.26	77.5	0.17	3.1	0.01	0.2	0.00	0.0	0.2921	3.04	54.8	16.9	1204
556	0.02	0.6	0.44	14.0	2.56	81.5	0.09	2.9	0.05	1.6	0.00	0.0	0.4247	4.48	61.2	19.1	1256
591	0.02	0.5	1.14	26.3	2.94	67.7	0.21	4.8	0.05	1.2	0.00	0.0	0.4698	4.33	53.4	18.0	1121
592	0.02	0.3	0.90	14.3	5.09	80.7	0.19	3.0	0.11	1.7	0.02	0.3	0.4007	3.49	57.9	18.3	1126
645	0.00	0.0	0.61	10.7	4.74	82.4	0.38	6.6	0.02	0.3	0.00	0.0	0.2036	2.23	60.9	19.0	1119
646	0.00	0.0	0.55	12.8	3.56	82.6	0.16	3.7	0.04	0.9	0.00	0.0	0.6586	7.12	57.9	18.9	1211
653	0.00	0.0	0.21	6.9	2.76	89.3	0.08	2.6	0.02	0.6	0.02	0.6	0.5334	5.65	58.3	19.2	575
654	0.00	0.0	0.74	12.5	4.96	83.8	0.19	3.2	0.03	0.5	0.00	0.0	0.4291	4.56	56.8	18.9	1312
667	0.00	0.0	2.22	19.6	8.36	73.9	0.42	3.7	0.30	2.7	0.01	0.1	0.4003	3.70	54.2	18.9	1071
668	0.03	0.5	0.69	10.4	5.69	86.0	0.16	2.4	0.08	1.2	0.00	0.0	0.3920	4.17	59.6	18.7	1146
685	0.00	0.0	0.41	10.7	3.26	85.6	0.08	2.1	0.05	1.3	0.01	0.3	0.3073	3.04	59.7	19.2	930
686	0.00	0.0	0.87	11.5	6.32	83.5	0.21	2.8	0.16	2.1	0.01	0.1	0.4411	3.89	46.5	18.0	1087
709	0.03	0.3	1.06	10.7	8.59	86.2	0.22	2.2	0.08	0.8	0.01	0.1	0.3879	3.95	60.7	18.7	1060
710	0.00	0.0	1.04	21.2	3.73	76.0	0.09	1.8	0.05	1.0	0.00	0.0	0.4269	4.41	62.0	18.2	1068
715	0.00	0.0	0.61	8.2	6.40	85.7	0.36	4.8	0.09	1.2	0.01	0.1	0.1430	1.33	42.4	17.9	1022
716	0.00	0.0	0.71	15.3	3.64	79.0	0.16	3.5	0.10	2.2	0.00	0.0	0.3702	3.68	54.2	19.4	955

Table F-24a. Re-Healing Hematology Data

Date	ID	Sex	Dose (mg/L)	Sample Type	WBC (K/uL)	RBC (M/uL)	HGB (g/dL)	HCT (%)	MCV (fL)	MCH (pg)	MCHC (g/dL)	PLT (K/uL)	RDW-SD (fL)	RDW-CV (%)	MPV (fL)
21-Jun-21	827	M	125	1:7 Pre-Dilution	2.42	9.87	15.7	47.5	48.1	15.9	33.1	1259	21.3	11.1	6.9
21-Jun-21	828	M	125	1:7 Pre-Dilution	2.11	9.66	15.2	46.3	47.9	15.7	32.8	1215	22.3	11.7	6.9
21-Jun-21	841	M	250	1:7 Pre-Dilution	4.22	9.21	14.8	46.5	50.5	16.1	31.8	896	24.4	12.2	9.6
21-Jun-21	842	M	250	1:7 Pre-Dilution	0.70	9.10	13.8	43.7	48.0	15.2	31.6	1167	24.9	13.2	8.5
21-Jun-21	877	M	0	1:7 Pre-Dilution	6.53	11.02	16.3	51.4	46.6	14.8	31.7	1046	21.4	11.5	9.0
21-Jun-21	878	M	0	1:7 Pre-Dilution	2.73	10.22	16.2	52.4	51.3	15.9	30.9	1140	24.7	12.0	7.6
21-Jun-21	1045	F	500	1:7 Pre-Dilution	8.62	9.52	15.4	47.5	49.9	16.2	32.4	992	26.6	13.3	9.1
21-Jun-21	1046	F	500	1:7 Pre-Dilution	5.85	10.04	15.9	50.6	50.4	15.8	31.4	910	25.5	12.8	7.0
21-Jun-21	1055	F	125	1:7 Pre-Dilution	4.51	9.24	15.0	45.9	49.7	16.2	32.7	897	25.9	12.8	8.3
21-Jun-21	1056	F	125	1:7 Pre-Dilution	2.39	9.75	15.7	47.8	49.0	16.1	32.8	937	25.2	12.9	8.1
21-Jun-21	1073	F	250	1:7 Pre-Dilution	2.71	9.88	15.2	47.1	47.7	15.4	32.3	1070	26.9	14.1	8.1
21-Jun-21	1074	F	250	1:7 Pre-Dilution	3.02	11.01	16.8	52.1	47.3	15.3	32.2	1305	23.4	12.5	7.0
21-Jun-21	1091	F	2,000	1:7 Pre-Dilution	7.74	10.40	16.6	52.1	50.1	16.0	31.9	1234	26.4	13.2	7.8
21-Jun-21	1092	F	2,000	1:7 Pre-Dilution	3.86	11.19	17.1	53.6	47.9	15.3	31.9	987	24.7	12.8	7.9
21-Jun-21	1095	F	1,000	1:7 Pre-Dilution	4.59	8.94	14.9	43.3	48.4	16.7	34.4	261	24.4	12.5	8.2
21-Jun-21	1096	F	1,000	1:7 Pre-Dilution	2.63	11.80	17.4	54.1	45.8	14.7	32.2	1191	24.1	13.1	7.2
21-Jun-21	1115	F	0	1:7 Pre-Dilution	7.14	10.59	17.4	52.7	49.8	16.4	33.0	1311	23.0	11.6	8.1
21-Jun-21	1116	F	0	1:7 Pre-Dilution	5.70	10.91	17.2	52.4	48.0	15.8	32.8	1004	21.5	11.1	7.2
22-Jun-21	769	M	0	1:7 Pre-Dilution	2.01	8.72	14.3	46.5	53.3	16.4	30.8	1023	27.7	12.9	8.1
22-Jun-21	770	M	0	1:7 Pre-Dilution	3.93	9.92	14.8	49.7	50.1	14.9	29.8	1294	25.0	12.6	7.5
22-Jun-21	833	M	250	1:7 Pre-Dilution	2.90	10.68	15.2	49.5	46.3	14.2	30.7	1021	20.6	11.2	9.2
22-Jun-21	834	M	250	1:7 Pre-Dilution	2.93	9.92	15.2	49.5	49.9	15.3	30.7	984	22.5	11.3	8.3
22-Jun-21	859	M	125	1:7 Pre-Dilution	6.40	9.58	14.7	47.9	50.0	15.3	30.7	936	23.1	11.6	8.9
22-Jun-21	860	M	125	1:7 Pre-Dilution	3.48	9.97	15.1	48.5	48.6	15.1	31.1	1088	24.0	12.3	8.7
22-Jun-21	1025	F	125	1:7 Pre-Dilution	6.25	10.80	17.1	54.2	50.2	15.8	31.5	1167	26.2	12.9	7.9
22-Jun-21	1026	F	125	1:7 Pre-Dilution	8.16	9.88	15.9	49.8	50.4	16.1	31.9	655	27.4	13.8	8.6
22-Jun-21	1067	F	250	1:7 Pre-Dilution	7.67	9.89	15.2	46.5	47.0	15.4	32.7	1207	24.3	13.0	7.5
22-Jun-21	1068	F	250	1:7 Pre-Dilution	7.51	9.78	14.7	47.4	48.5	15.0	31.0	1175	26.6	13.7	8.2

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22-Jun-21	1069	F	0	1:7 Pre-Dilution	9.65	10.44	17.4	54.3	52.0	16.7	32.0	758	25.8	12.2	8.4
22-Jun-21	1070	F	0	1:7 Pre-Dilution	3.98	9.63	14.3	46.3	48.1	14.8	30.9	822	25.0	13.3	8.7
22-Jun-21	1087	F	1,000	1:7 Pre-Dilution	6.48	9.49	15.1	47.1	49.6	15.9	32.1	1168	24.9	12.7	8.5
22-Jun-21	1111	F	500	1:7 Pre-Dilution	4.52	9.98	15.4	48.4	48.5	15.4	31.8	876	24.6	12.6	7.9
22-Jun-21	1112	F	500	1:7 Pre-Dilution	12.27	10.00	16.1	49.2	49.2	16.1	32.7	988	23.4	11.9	7.9
22-Jun-21	1125	F	2,000	1:7 Pre-Dilution	7.13	9.61	14.5	45.3	47.1	15.1	32.0	1506	24.1	12.9	6.9
22-Jun-21	1126	F	2,000	1:7 Pre-Dilution	9.12	10.74	17.3	54.3	50.6	16.1	31.9	1049	25.5	12.6	7.4
23-Jun-21	765	M	125	1:7 Pre-Dilution	2.97	11.29	16.7	55.1	48.8	14.8	30.3	1330	24.4	12.5	7.5
23-Jun-21	766	M	125	1:7 Pre-Dilution	2.03	9.77	14.6	46.9	48.0	14.9	31.1	1075	23.6	12.2	8.1
23-Jun-21	813	M	0	1:7 Pre-Dilution	3.01	10.24	15.3	49.9	48.7	14.9	30.7	1022	25.2	12.8	9.0
23-Jun-21	814	M	0	1:7 Pre-Dilution	4.54	9.08	13.6	44.0	48.5	15.0	30.9	1102	24.9	12.9	8.3
23-Jun-21	847	M	250	1:7 Pre-Dilution	3.81	8.94	14.0	44.5	49.8	15.7	31.5	1256	23.2	11.8	8.6
23-Jun-21	848	M	250	1:7 Pre-Dilution	5.04	9.32	14.2	45.6	48.9	15.2	31.1	924	24.5	12.4	8.5
23-Jun-21	1017	F	125	1:7 Pre-Dilution	2.48	10.68	16.1	51.4	48.1	15.1	31.3	1373	25.4	13.3	7.4
23-Jun-21	1018	F	125	1:7 Pre-Dilution	5.56	9.05	14.3	45.7	50.5	15.8	31.3	1123	30.1	15.0	8.5
23-Jun-21	1027	F	0	1:7 Pre-Dilution	6.86	10.07	15.7	47.9	47.6	15.6	32.8	1136	22.9	12.4	7.2
23-Jun-21	1028	F	0	1:7 Pre-Dilution	4.60	10.40	16.9	52.2	50.2	16.3	32.4	1186	23.0	11.7	7.2
23-Jun-21	1041	F	500	1:7 Pre-Dilution	6.68	9.62	15.9	49.2	51.1	16.5	32.3	1011	25.5	12.5	9.2
23-Jun-21	1042	F	500	1:7 Pre-Dilution	3.99	9.92	15.9	50.2	50.6	16.0	31.7	843	23.7	11.7	9.0
23-Jun-21	1097	F	2,000	1:7 Pre-Dilution	8.29	10.50	15.5	49.0	46.7	14.8	31.6	1238	22.0	11.9	8.8
23-Jun-21	1098	F	2,000	1:7 Pre-Dilution	3.53	11.07	17.0	53.4	48.2	15.4	31.8	856	22.4	11.5	9.0
23-Jun-21	1101	F	250	1:7 Pre-Dilution	3.29	10.53	15.8	50.3	47.8	15.0	31.4	1273	26.1	13.7	7.9
23-Jun-21	1102	F	250	1:7 Pre-Dilution	7.88	11.15	16.6	52.7	47.3	14.9	31.5	954	23.3	12.4	8.0
23-Jun-21	1117	F	1,000	1:7 Pre-Dilution	4.03	9.98	14.9	47.2	47.3	14.9	31.6	1154	26.1	13.9	8.1
23-Jun-21	1118	F	1,000	1:7 Pre-Dilution	3.53	9.53	15.4	49.3	51.7	16.2	31.2	516	26.4	13.0	9.2
24-Jun-21	755	M	125	1:7 Pre-Dilution	6.30	10.88	15.1	49.9	45.9	13.9	30.3	1078	24.1	13.1	7.9
24-Jun-21	756	M	125	1:7 Pre-Dilution	5.06	9.29	13.3	43.4	46.7	14.3	30.6	1214	24.4	13.1	8.7
24-Jun-21	797	M	0	1:7 Pre-Dilution	4.76	11.17	16.4	52.3	46.8	14.7	31.4	959	21.0	11.1	8.8
24-Jun-21	798	M	0	1:7 Pre-Dilution	2.22	9.97	14.8	46.7	46.8	14.8	31.7	1221	24.6	13.3	8.3
24-Jun-21	817	M	250	1:7 Pre-Dilution	7.67	9.96	15.0	48.3	48.5	15.1	31.1	1230	23.4	12.1	7.6
24-Jun-21	818	M	250	1:7 Pre-Dilution	8.12	10.36	15.4	49.0	47.3	14.9	31.4	1202	23.6	12.7	8.3
24-Jun-21	1035	F	1,000	1:7 Pre-Dilution	6.35	9.60	14.5	45.8	47.7	15.1	31.7	1373	27.6	14.6	8.3
24-Jun-21	1036	F	1,000	1:7 Pre-Dilution	3.29	9.08	13.3	42.2	46.5	14.6	31.5	47	23.7	12.9	8.1
24-Jun-21	1043	F	500	1:7 Pre-Dilution	9.07	10.05	15.6	48.9	48.7	15.5	31.9	1234	25.9	13.3	8.4

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24-Jun-21	1044	F	500	1:7 Pre-Dilution	6.10	10.06	14.7	47.8	47.5	14.6	30.8	758	28.0	14.5	8.3
24-Jun-21	1075	F	2,000	1:7 Pre-Dilution	6.94	10.00	16.3	51.0	51.0	16.3	32.0	1033	26.7	13.1	8.1
24-Jun-21	1076	F	2,000	1:7 Pre-Dilution	10.15	10.72	16.3	50.0	46.6	15.2	32.6	984	22.1	12.0	8.0
24-Jun-21	1083	F	0	1:7 Pre-Dilution	3.99	9.78	15.4	47.8	48.9	15.7	32.2	1304	26.4	13.8	8.4
24-Jun-21	1084	F	0	1:7 Pre-Dilution	4.46	11.06	16.8	52.7	47.6	15.2	31.9	952	23.8	12.7	7.4
24-Jun-21	1085	F	125	1:7 Pre-Dilution	5.73	9.72	15.1	48.4	49.8	15.5	31.2	1056	25.4	12.8	8.3
24-Jun-21	1086	F	125	1:7 Pre-Dilution	5.12	11.25	16.9	54.5	48.4	15.0	31.0	1111	24.0	12.2	8.2
24-Jun-21	1123	F	250	1:7 Pre-Dilution	8.24	10.11	15.3	48.8	48.3	15.1	31.4	764	25.7	13.5	9.1
24-Jun-21	1124	F	250	1:7 Pre-Dilution	5.12	8.02	12.7	40.1	50.0	15.8	31.7	463	25.3	12.8	9.0
25-Jun-21	829	M	250	1:7 Pre-Dilution	3.74	9.73	14.3	46.1	47.4	14.7	31.0	1101	26.2	13.9	8.1
25-Jun-21	830	M	250	1:7 Pre-Dilution	9.04	9.78	15.4	49.3	50.4	15.7	31.2	981	23.3	11.7	7.9
25-Jun-21	857	M	0	1:7 Pre-Dilution	5.02	8.76	14.4	45.9	52.4	16.4	31.4	1149	26.2	12.5	7.9
25-Jun-21	858	M	0	1:7 Pre-Dilution	4.09	10.38	16.6	49.9	48.1	16.0	33.3	942	23.0	12.1	7.9
25-Jun-21	865	M	125	1:7 Pre-Dilution	4.99	10.74	16.0	51.9	48.3	14.9	30.8	1049	23.2	11.9	8.8
25-Jun-21	866	M	125	1:7 Pre-Dilution	5.68	10.11	15.5	50.0	49.5	15.3	31.0	1198	24.6	12.4	8.4
25-Jun-21	1033	F	0	1:7 Pre-Dilution	7.07	10.25	16.1	50.3	49.1	15.7	32.0	787	25.2	12.7	8.5
25-Jun-21	1034	F	0	1:7 Pre-Dilution	8.79	10.11	16.5	50.2	49.7	16.3	32.9	141	24.4	12.5	9.6
25-Jun-21	1037	F	1,000	1:7 Pre-Dilution	4.16	11.24	17.3	52.8	47.0	15.4	32.8	802	22.5	12.2	8.3
25-Jun-21	1038	F	1,000	1:7 Pre-Dilution	7.40	10.55	16.0	51.9	49.2	15.2	30.8	815	23.8	12.1	7.6
25-Jun-21	1039	F	2,000	1:7 Pre-Dilution	7.36	11.18	17.1	53.2	47.6	15.3	32.1	409	23.0	12.1	9.1
25-Jun-21	1040	F	2,000	1:7 Pre-Dilution	5.01	11.27	17.8	54.6	48.4	15.8	32.6	764	24.0	12.1	8.5
25-Jun-21	1061	F	125	1:7 Pre-Dilution	8.32	9.26	14.4	46.7	50.4	15.6	30.8	1024	27.3	13.4	9.0
25-Jun-21	1062	F	125	1:7 Pre-Dilution	7.39	10.47	16.0	50.1	47.9	15.3	31.9	1132	24.1	12.7	8.7
25-Jun-21	1109	F	500	1:7 Pre-Dilution	7.66	10.22	15.7	48.2	47.2	15.4	32.6	1542	23.5	12.7	7.1
25-Jun-21	1110	F	500	1:7 Pre-Dilution	8.51	10.32	14.8	47.9	46.4	14.3	30.9	1087	22.7	12.5	8.1
25-Jun-21	1121	F	250	1:7 Pre-Dilution	5.15	10.61	16.2	50.4	47.5	15.3	32.1	1079	23.3	12.2	7.7
25-Jun-21	1122	F	250	1:7 Pre-Dilution	8.13	10.27	16.3	50.8	49.5	15.9	32.1	1189	22.6	11.6	8.0

Table F-24b. Re-Healing Hematology Data continued

ID	NRBC		NEUT		LYMPH		MONO		EO		BASO		RET		IRF	RET-He	PLT-F
	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(K/uL)	(%)	(%)	(pg)	(K/uL)
827	0.00	0.0	0.56	23.2	1.76	72.7	0.07	2.9	0.03	1.2	0.00	0.00	0.3751	3.80	56.0	19.0	1259
828	0.00	0.0	0.62	29.4	1.41	66.8	0.05	2.4	0.03	1.4	0.00	0.00	0.3323	3.44	51.0	18.8	1215
841	0.00	0.0	0.69	16.4	3.44	81.5	0.07	1.7	0.01	0.2	0.01	0.20	0.3095	3.36	53.6	19.4	896
842	0.02	2.9	0.21	29.9	0.42	60.0	0.03	4.3	0.02	2.9	0.02	2.90	0.3140	3.45	54.2	18.6	1167
877	0.00	0.0	0.80	12.3	5.56	85.1	0.13	2.0	0.04	0.6	0.00	0.00	0.3714	3.37	50.2	18.3	1046
878	0.00	0.0	0.38	13.9	2.23	81.7	0.08	2.9	0.04	1.5	0.00	0.00	0.4548	4.45	56.3	19.1	1140
1045	0.02	0.2	0.98	11.4	7.40	85.8	0.17	2.0	0.07	0.8	0.00	0.00	0.2599	2.73	50.3	18.9	992
1046	0.02	0.3	0.49	8.4	4.98	85.1	0.26	4.4	0.11	1.9	0.01	0.20	0.6325	6.30	57.3	19.2	910
1055	0.00	0.0	0.34	7.5	3.99	88.5	0.10	2.2	0.07	1.6	0.01	0.20	0.2033	2.20	44.3	19.1	897
1056	0.02	0.8	0.32	13.4	1.85	77.4	0.14	5.9	0.08	3.3	0.00	0.00	0.3081	3.16	58.6	20.1	937
1073	0.03	1.1	0.19	7.0	2.39	88.2	0.08	3.0	0.03	1.1	0.02	0.70	0.3853	3.90	50.9	18.8	1070
1074	0.00	0.0	0.46	15.2	2.44	80.8	0.06	2.0	0.06	2.0	0.00	0.00	0.3347	3.04	61.9	18.4	1305
1091	0.00	0.0	0.73	9.4	6.32	81.7	0.32	4.1	0.35	4.5	0.02	0.30	0.2538	2.44	33.3	17.4	1234
1092	0.00	0.0	0.33	8.5	3.39	87.8	0.08	2.1	0.06	1.6	0.00	0.00	0.3234	2.89	54.5	18.4	987
1095	0.00	0.0	0.38	8.3	3.99	86.9	0.09	2.0	0.13	2.8	0.00	0.00	0.1824	2.04	51.6	19.4	261
1096	0.02	0.8	0.48	18.3	2.07	78.7	0.04	1.5	0.04	1.5	0.00	0.00	0.5027	4.26	64.0	18.3	1191
1115	0.00	0.0	0.78	10.9	6.12	85.7	0.15	2.1	0.09	1.3	0.00	0.00	0.3495	3.30	59.9	19.7	1311
1116	0.02	0.4	0.87	15.2	4.58	80.4	0.08	1.4	0.17	3.0	0.00	0.00	0.3622	3.32	52.0	19.1	1004
769	0.00	0.0	0.56	27.8	1.33	66.2	0.09	4.5	0.03	1.5	0.00	0.00	0.2939	3.37	51.8	19.1	1023
770	0.02	0.5	0.60	15.3	3.13	79.6	0.17	4.3	0.03	0.8	0.00	0.00	0.3829	3.86	57.9	17.8	1294
833	0.00	0.0	0.56	19.3	2.24	77.2	0.08	2.8	0.02	0.7	0.00	0.00	0.4389	4.11	61.4	17.6	1021
834	0.00	0.0	0.58	19.8	2.25	76.8	0.05	1.7	0.05	1.7	0.00	0.00	0.2847	2.87	49.3	18.8	984
859	0.02	0.3	0.95	14.8	5.11	79.8	0.26	4.1	0.08	1.3	0.00	0.00	0.3592	3.75	55.0	18.9	936
860	0.00	0.0	0.51	14.6	2.76	79.3	0.11	3.2	0.10	2.9	0.00	0.00	0.3310	3.32	59.0	18.7	1088
1025	0.00	0.0	0.72	11.5	5.10	81.6	0.35	5.6	0.08	1.3	0.00	0.00	0.2387	2.21	45.7	18.7	1167
1026	0.00	0.0	0.46	5.7	7.28	89.2	0.23	2.8	0.17	2.1	0.02	0.20	0.5809	5.88	60.5	20.0	655
1067	0.04	0.5	0.59	7.6	6.70	87.4	0.25	3.3	0.12	1.6	0.01	0.10	0.3659	3.70	59.7	18.7	1207
1068	0.05	0.7	0.71	9.5	6.43	85.6	0.29	3.9	0.07	0.9	0.01	0.10	0.4166	4.26	51.3	17.9	1175

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1069	0.00	0.0	0.73	7.6	8.62	89.3	0.24	2.5	0.05	0.5	0.01	0.10	0.2276	2.18	59.4	19.8	758
1070	0.08	2.0	0.42	10.5	3.29	82.7	0.19	4.8	0.08	2.0	0.00	0.00	0.5711	5.93	62.0	18.5	822
1087	0.05	0.8	0.68	10.5	5.58	86.1	0.18	2.8	0.04	0.6	0.00	0.00	0.3995	4.21	54.9	18.7	1168
1111	0.00	0.0	0.43	9.5	3.93	86.9	0.13	2.9	0.03	0.7	0.00	0.00	0.1377	1.38	45.5	18.3	876
1112	0.02	0.2	1.94	15.7	9.85	80.3	0.35	2.9	0.12	1.0	0.01	0.10	0.3870	3.87	56.6	18.7	988
1125	0.02	0.3	1.34	18.8	5.54	77.7	0.15	2.1	0.10	1.4	0.00	0.00	0.2479	2.58	51.7	17.9	1506
1126	0.02	0.2	0.72	7.9	8.09	88.7	0.16	1.8	0.14	1.5	0.01	0.10	0.4189	3.90	50.9	18.8	1049
765	0.00	0.0	0.50	16.8	2.35	79.1	0.10	3.4	0.02	0.7	0.00	0.00	0.4482	3.97	54.9	18.1	1330
766	0.00	0.0	0.30	14.8	1.60	78.8	0.08	3.9	0.05	2.5	0.00	0.00	0.2667	2.73	53.0	18.5	1075
813	0.00	0.0	0.43	14.2	2.44	81.1	0.06	2.0	0.08	2.7	0.00	0.00	0.4014	3.92	60.0	18.1	1022
814	0.00	0.0	0.69	15.2	3.55	78.2	0.21	4.6	0.09	2.0	0.00	0.00	0.3305	3.64	54.0	18.0	1102
847	0.00	0.0	1.15	30.2	2.47	64.8	0.17	4.5	0.02	0.5	0.00	0.00	0.3826	4.28	53.3	18.9	1256
848	0.00	0.0	0.91	18.0	3.90	77.4	0.16	3.2	0.07	1.4	0.00	0.00	0.3318	3.56	54.2	18.2	924
1017	0.02	0.8	0.66	26.6	1.52	61.3	0.27	10.9	0.03	1.2	0.00	0.00	0.5757	5.39	59.8	18.9	1373
1018	0.03	0.5	0.48	8.6	4.82	86.7	0.20	3.6	0.05	0.9	0.01	0.20	0.4914	5.43	59.1	19.1	1123
1027	0.00	0.0	0.78	11.4	5.72	83.4	0.20	2.9	0.16	2.3	0.00	0.00	0.3595	3.57	55.6	18.8	1136
1028	0.00	0.0	0.58	12.5	3.89	84.6	0.10	2.2	0.03	0.7	0.00	0.00	0.3661	3.52	54.6	20.0	1186
1041	0.02	0.3	0.88	13.2	5.62	84.1	0.10	1.5	0.08	1.2	0.00	0.00	0.4358	4.53	49.4	19.1	1011
1042	0.00	0.0	0.28	7.0	3.62	90.7	0.06	1.5	0.03	0.8	0.00	0.00	0.3561	3.59	56.6	19.3	843
1097	0.00	0.0	1.34	16.2	6.65	80.2	0.17	2.1	0.12	1.4	0.01	0.10	0.3749	3.57	57.6	18.2	1238
1098	0.02	0.6	0.29	8.2	3.05	86.4	0.10	2.8	0.07	2.0	0.02	0.60	0.3587	3.24	51.6	19.3	856
1101	0.03	0.9	0.23	7.1	2.88	87.5	0.12	3.6	0.06	1.8	0.00	0.00	0.4760	4.52	52.7	18.5	1273
1102	0.02	0.3	0.60	7.7	6.89	87.4	0.23	2.9	0.15	1.9	0.01	0.10	0.3613	3.24	57.0	17.9	954
1117	0.00	0.0	0.34	8.5	3.35	83.1	0.17	4.2	0.17	4.2	0.00	0.00	0.4840	4.85	56.5	17.9	1154
1118	0.03	0.8	0.36	10.3	2.82	79.9	0.22	6.2	0.10	2.8	0.03	0.80	0.6328	6.64	60.1	19.2	516
755	0.00	0.0	0.74	11.7	5.30	84.1	0.19	3.0	0.06	1.0	0.01	0.20	0.3634	3.34	57.6	16.9	1078
756	0.02	0.4	3.07	60.7	1.69	33.4	0.25	4.9	0.03	0.6	0.02	0.40	0.2889	3.11	59.5	17.5	1214
797	0.00	0.0	1.25	26.3	3.28	68.9	0.19	4.0	0.04	0.8	0.00	0.00	0.3943	3.53	55.0	17.7	959
798	0.00	0.0	0.54	24.3	1.55	69.8	0.11	5.0	0.02	0.9	0.00	0.00	0.3380	3.39	55.2	18.2	1221
817	0.00	0.0	1.45	18.8	5.91	77.1	0.15	2.0	0.16	2.1	0.00	0.00	0.3815	3.83	55.7	18.6	1230
818	0.03	0.4	1.69	20.9	5.96	73.4	0.28	3.4	0.18	2.2	0.01	0.10	0.4009	3.87	58.3	17.7	1202
1035	0.00	0.0	0.83	13.1	5.19	81.7	0.23	3.6	0.10	1.6	0.00	0.00	0.4291	4.47	50.9	18.3	1373
1036	0.00	0.0	0.47	14.4	2.63	79.9	0.11	3.3	0.08	2.4	0.00	0.00	0.3124	3.44	53.3	18.0	47
1043	0.02	0.2	1.52	16.8	6.60	72.8	0.73	8.0	0.21	2.3	0.01	0.10	0.3819	3.80	61.4	19.1	1234

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1044	0.04	0.7	0.62	10.2	5.18	84.9	0.24	3.9	0.05	0.8	0.01	0.20	0.3018	3.00	51.5	17.9	758
1075	0.03	0.4	0.78	11.2	6.01	86.6	0.08	1.2	0.07	1.0	0.00	0.00	0.3100	3.10	62.1	19.7	1033
1076	0.03	0.3	1.27	12.5	8.60	84.7	0.19	1.9	0.09	0.9	0.00	0.00	0.3355	3.13	50.4	18.4	984
1083	0.02	0.5	0.30	7.5	3.57	89.5	0.10	2.5	0.02	0.5	0.00	0.00	0.5125	5.24	59.0	19.2	1304
1084	0.02	0.4	0.90	20.2	3.28	73.5	0.19	4.3	0.08	1.8	0.01	0.20	0.3606	3.26	62.0	18.8	952
1085	0.03	0.5	0.46	8.0	4.99	87.1	0.20	3.5	0.07	1.2	0.01	0.20	0.4724	4.86	58.9	19.3	1056
1086	0.00	0.0	0.70	13.7	4.23	82.6	0.15	2.9	0.03	0.6	0.01	0.20	0.1519	1.35	47.9	18.2	1111
1123	0.00	0.0	0.58	7.2	7.37	89.4	0.21	2.5	0.07	0.8	0.01	0.10	0.4661	4.61	62.7	18.9	764
1124	0.09	1.8	0.45	8.8	4.46	87.1	0.14	2.7	0.07	1.4	0.00	0.00	0.2743	3.42	73.9	19.1	463
829	0.00	0.0	0.57	15.2	2.98	79.7	0.11	2.9	0.07	1.9	0.01	0.30	0.3240	3.33	57.5	17.9	1101
830	0.00	0.0	1.64	18.1	7.04	77.9	0.21	2.3	0.15	1.7	0.00	0.00	0.3687	3.77	58.1	19.0	981
857	0.00	0.0	0.71	14.1	4.09	81.5	0.15	3.0	0.07	1.4	0.00	0.00	0.2908	3.32	53.4	19.7	1149
858	0.00	0.0	0.56	13.7	3.46	84.6	0.04	1.0	0.03	0.7	0.00	0.00	0.3425	3.30	56.5	19.1	942
865	0.00	0.0	0.67	13.4	4.10	82.2	0.15	3.0	0.06	1.2	0.01	0.20	0.3211	2.99	58.3	18.3	1049
866	0.00	0.0	1.61	28.4	3.91	68.8	0.13	2.3	0.03	0.5	0.00	0.00	0.3164	3.13	58.7	18.2	1198
1033	0.09	1.3	0.86	12.2	5.62	79.5	0.39	5.5	0.19	2.7	0.01	0.10	0.1906	1.86	53.6	18.3	787
1034	0.04	0.5	0.41	4.7	7.92	90.1	0.23	2.6	0.21	2.4	0.02	0.20	0.5055	5.00	64.2	19.7	141
1037	0.05	1.2	0.35	8.4	3.63	87.3	0.13	3.1	0.04	1.0	0.01	0.20	0.3215	2.86	50.1	19.4	802
1038	0.03	0.4	1.06	14.3	5.73	77.4	0.48	6.5	0.13	1.8	0.00	0.00	0.4927	4.67	58.0	18.6	815
1039	0.02	0.3	0.58	7.9	6.44	87.5	0.19	2.6	0.14	1.9	0.01	0.10	0.4461	3.99	63.2	18.7	409
1040	0.02	0.4	0.33	6.6	4.50	89.8	0.10	2.0	0.08	1.6	0.00	0.00	0.2412	2.14	50.6	19.1	764
1061	0.02	0.2	0.80	9.6	7.03	84.5	0.44	5.3	0.05	0.6	0.00	0.00	0.3982	4.30	60.0	18.8	1024
1062	0.07	0.9	1.04	14.1	5.94	80.4	0.21	2.8	0.19	2.6	0.01	0.10	0.3748	3.58	58.6	18.5	1132
1109	0.00	0.0	0.58	7.5	6.63	86.6	0.32	4.2	0.12	1.6	0.01	0.10	0.1645	1.61	48.2	19.0	1542
1110	0.02	0.2	0.87	10.2	7.37	86.6	0.15	1.8	0.12	1.4	0.00	0.00	0.3715	3.60	64.0	18.3	1087
1121	0.00	0.0	0.55	10.6	4.32	83.9	0.23	4.5	0.05	1.0	0.00	0.00	0.3183	3.00	58.4	18.3	1079
1122	0.00	0.0	1.16	14.3	6.51	80.1	0.32	3.9	0.13	1.6	0.01	0.10	0.2496	2.43	55.0	18.7	1189

Appendix G

Summarized Body Weight Results

Refer to the Glossary at the end of this report for definitions of the acronyms used on the tables in this appendix.

Table G-1. ANOVA, Mixed Effects (Type III), Males, Median Weekly Mass (g), Limit Test

Effect	DFn	DFd	SSn	SSd	F	p	p<.05	gn ²
(Intercept)	1	28	147318.943	503.677	8189.629	0.000	*	0.997
Formulation	6	28	64.800	503.677	0.600	0.728		0.112
Week	2	56	46.425	8.283	156.943	0.000	*	0.083
Formulation:Week	12	56	3.632	8.283	2.046	0.037	*	0.007

Table G-2. Post-hoc ANOVA (Type I) of Weekly Median Mass (g) of Male Limit Test of Formulation at Each Week

Week	Effect	DFn	DFd	F	p	p<.05	gn ²	p adjusted
1	Formulation	6	28	0.472	0.823		0.092	1
2	Formulation	6	28	0.762	0.606		0.140	1
3	Formulation	6	28	0.624	0.710		0.118	1

Note:

p value Bonferroni adjusted for multiple comparisons.

Table G-3. Post-hoc ANOVA Analysis of Treatment Effect on Median Percent of Starting Weight (%) at Fourth Week of Male Mice Exposed to ECOPOL A for 28 Days.

Effect	SSn	SSd	DFn	DFd	F	p	p<.05	gn ²
Treatment	360.104	1288.692	5	50	2.794	0.027	*	0.218

Table G-4. Post-hoc Dunnett's Test Analysis of Treatment Contrasts on Median Percent of Starting Weight (%) at Fourth Week of Male Mice Exposed to ECOPOL A for 28 Days

Contrasts	Difference	Lower CI	Upper CI	p
LowLow-Control	0.5796	-5.4945	6.6538	0.9993
Low-Control	1.6152	-4.4590	7.6894	0.9373
Medium-Control	-3.8878	-9.7999	2.0244	0.3130
MediumHigh-Control	-4.3912	-10.4654	1.6829	0.2321
High-Control	-4.5442	-10.6184	1.5299	0.2055

Table G-5. Post-hoc ANOVA Analysis of Treatment Effect on Median Percent of Starting Weight (%) at Fourth Week of Male Mice Exposed to Avio Green for 28 Days

Effect	SSn	SSd	DFn	DFd	F	p	p<.05	gn ²
Treatment	218.548	840.902	5	51	2.651	0.033	*	0.206

Table G-6. Post-hoc Dunnett's Test Analysis of Treatment Contrasts on Median Percent of Starting Weight (%) at Fourth Week of Male Mice Exposed to Avio Green for 28 Days

Contrasts	Difference	Lower CI	Upper CI	p
LowLow-Control	-0.3791	-5.1025	4.3443	0.9997
Low-Control	-1.0115	-5.7349	3.7119	0.9735
Medium-Control	-2.9230	-7.7758	1.9298	0.3939
MediumHigh-Control	-3.7649	-8.4883	0.9585	0.1601
High-Control	-5.6239	-10.6338	-0.6140	0.0224

Appendix H

Summarized Organ Weight Results

Refer to the Glossary at the end of this report for definitions of the acronyms used on the tables in this appendix.

Table H-1. Statistical Effects in Tissue Masses of Animals Exposed Once to ECOPOL A, Enviro, or NFD 20-391

	ECOPOL A		Enviro		NFD 20-391	
	Female	Male	Female	Male	Female	Male
Spleen	NE	NE	NE	NE	NE	NE
Thymus	NE	NE	NE	NE	NE	NE
Uterus	NE	NA	NE	NA	NE	NA
Liver	NE	NE	NE	NE	NE	NE
Ovaries	NE	NA	NE	NA	NE	NA
Adrenals	NE	NE	NE	NE	NE	$p=0.060$
Brain	NE	NE	NE	NE	NE	NE
Heart	NE	NE	NE	NE	NE	NE
Kidneys	NE	NE	NE	NE	NE	NE
Testes	NA	NE	NA	NE	NA	NE
Epididymides	NA	NE	NA	NE	NA	NE

Note:

p-values near 0.05 were included for context. Adrenals effects are Mann-Whitney U test of tissue mass / brain mass treated vs. control.

Table H-2. Statistical Effects in Tissue Masses of Animals Exposed Once to Avio Green, NRL 502W, Re-Healing, and Buckeye

	Avio Green		NRL 502W		Re-Healing		Buckeye	
	Female	Male	Female	Male	Female	Male	Female	Male
Spleen	NE	NE	NE	NE	NE	NE	NE	NE
Thymus	NE	NE	NE	NE	NE	NE	$p=0.062$	NE
Uterus	NE	NA	NE	NA	NE	NA	NE	NA
Liver	NE	NE	NE	NE	NE	NE	NE	NE
Ovaries	NE	NA	NE	NA	NE	NA	NE	NA
Adrenals	NE	NE	NE	NE	NE	NE	NE	NE
Brain	NE	NE	NE	NE	NE	NE	NE	NE
Heart	NE	NE	NE	NE	NE	NE	NE	NE
Kidneys	NE	NE	NE	$p=0.042$ (EMM contrast) 2,000 ↑	NE	NE	NE	NE
Testes	NA	NE	NA	NE	NA	NE	NA	NE
Epididymides	NA	NE	NA	NE	NA	NE	NA	NE

Note:

p-values near 0.05 were included for context. Thymus effects are Mann-Whitney U test of tissue mass treated (2,000) vs. control. Adrenals effects are Mann-Whitney U test of tissue mass / brain mass treated vs. control. Kidneys effects are estimated marginal mean contrast between treated and control with bodyweight covariate. Arrows indicate direction of effect.

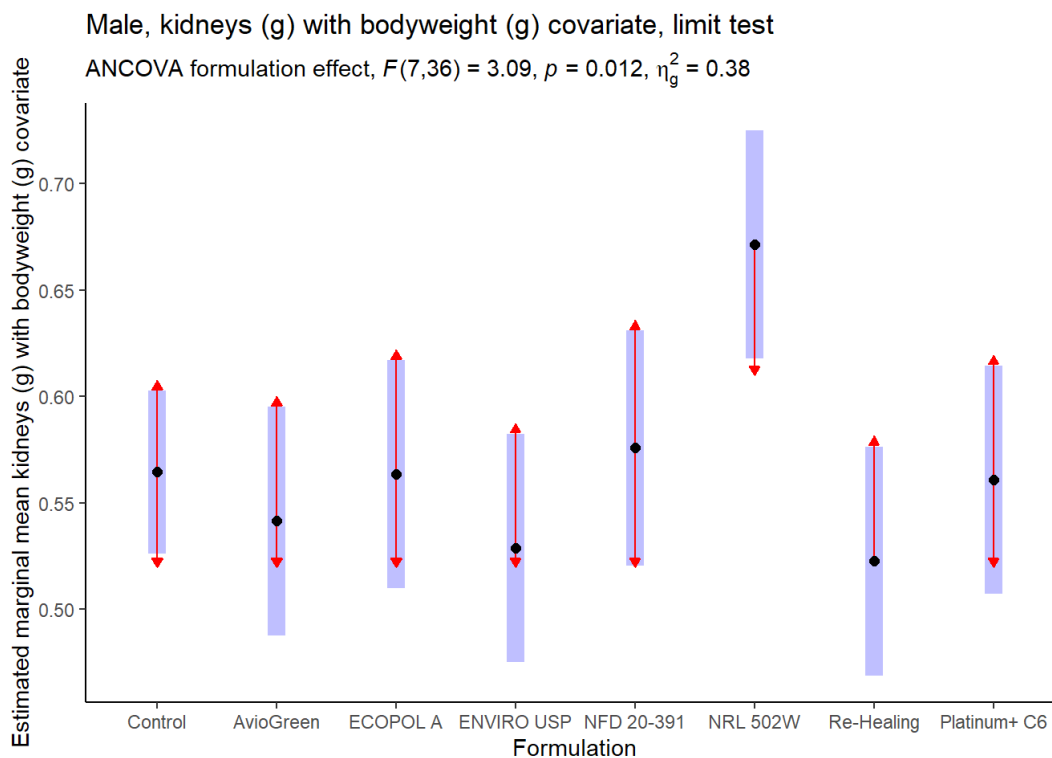


Figure H-1. Estimated marginal mean kidney(s) weight (g) with bodyweight covariate (g) for each formulation with ANCOVA statistics for reference

Note: Purple bars represent confidence intervals of data, red arrows indicate comparisons—no overlap of red arrows indicates significant difference in pairwise comparison. Notably, NRL 502W red arrows do not overlap with controls and several other formulations.

Table H-3. ANOVA Table for Effect of Dose on Male CD-1™ Mice Liver Weight (g) / Bodyweight (g) after Exposure to Buckeye for 28 Days

Effect	SSn	SSd	DFn	DFd	F	p	p<.05	gη ²
Dose	9e-04	0.001	5	54	8.872	0	*	0.451

Table H-4. Dunnett's Test Results for Contrasts Against Control Dose (0 mg/kg-d) for Liver Weight (g) / Bodyweight (g) for Male CD-1™ Mice Exposed to Buckeye for 28 Days

Contrast	Difference	Lower CI	Upper CI	p
125-0	0.0012	-0.0039	0.0064	0.9557
250-0	0.0033	-0.0019	0.0084	0.3416
500-0	0.0058	0.0006	0.0109	0.0226
1,000-0	0.0077	0.0026	0.0129	0.0015
2,000-0	0.0112	0.0060	0.0163	0.0000

Note:

CI are 95th percentile confidence interval uppers and lowers

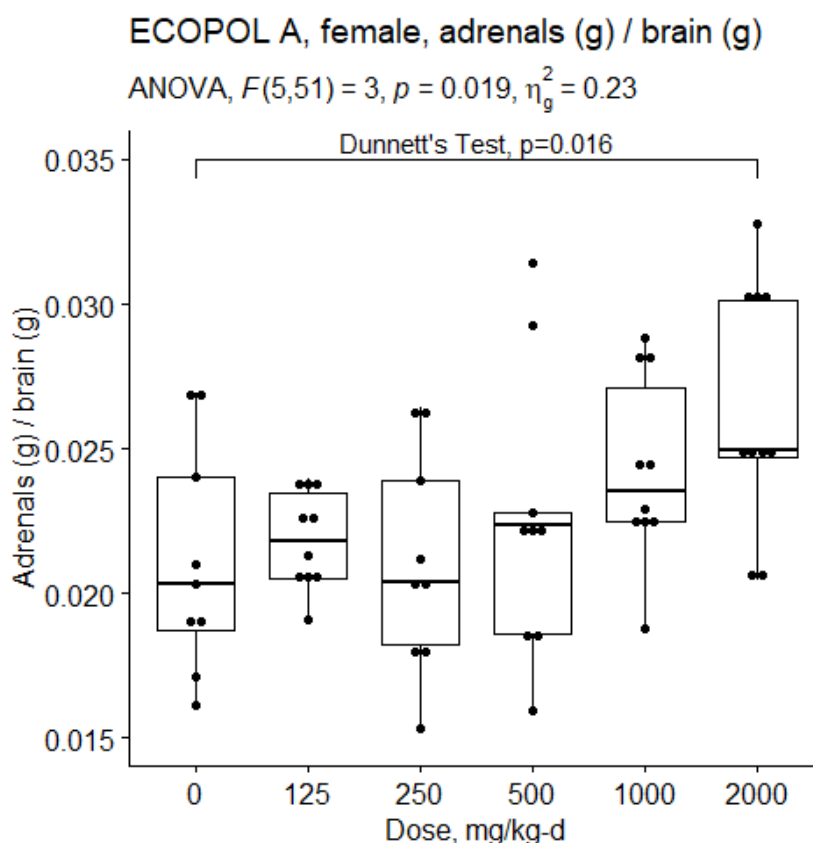


Figure H-2. Boxplot, Data, and Statistical Output for Adrenals Weight (g) / Brain Weight (g) for Female CD-1™ Mice Exposed to ECOPOL A for 28 Days in Increasing Concentrations

Note: Boxes are IQR with median central line and whiskers extend to 1.5*IQR away from median or extreme data point, whichever is less/more. Data are binned by 1/30th the range of the data. ANOVA statistics are included as well as p -values for Dunnett's test comparisons that are < 0.05 .

Table H-5. ANOVA Table for Effect of Dose on Female CD-1™ Mice Adrenals Weight (g) / Brain Weight (g) After Exposure to ECOPOL A for 28 Days

Effect	SSn	SSd	DFn	DFd	F	p	p<.05	g η^2
Dose	2e-04	7e-04	5	51	3.002	0.019	*	0.227

Table H-6. Dunnett's Test Results for Contrasts Against Control Dose (0 mg/kg-d) for Adrenals Weight (g) / Brain Weight (g) for Female CD-1™ Mice Exposed to ECOPOL A for 28 Days

Contrast	Difference	Lower CI	Upper CI	p
125-0	0.0007	-0.0038	0.0052	0.9927
250-0	-0.0001	-0.0047	0.0045	1.0000
500-0	0.0014	-0.0032	0.0060	0.8827
1,000-0	0.0032	-0.0013	0.0076	0.2495
2,000-0	0.0053	0.0008	0.0097	0.0160

Note:

CI are 95th percentile confidence interval uppers and lowers.

Table H-7. ANOVA Table for Effect of Dose on Male CD-1™ Mice Liver Weight (g) / Bodyweight (g) after Exposure to NRL 502W for 28 Days.

Effect	SSn	SSd	DFn	DFd	F	p	p<.05	g η^2
Dose	4e-04	8e-04	5	51	5.341	5e-04	*	0.344

Table H-8. Dunnett's Test Results for Contrasts Against Control Dose (0 mg/kg-d) for Liver Weight (g) / Bodyweight (g) for Male CD-1™ Mice Exposed to NRL 502W for 28 Days

Contrast	Difference	Lower CI	Upper CI	p
125-0	0.0006	-0.0041	0.0054	0.9968
250-0	-0.0012	-0.0060	0.0036	0.9495
500-0	-0.0047	-0.0095	0.0000	0.0522
1,000-0	-0.0024	-0.0070	0.0023	0.5555
2,000-0	-0.0071	-0.0117	-0.0025	0.0010

Note:

CI are 95th percentile confidence interval uppers and lowers.

Table H-9. Table of Chi-square Tests of Dose Response Model Fit vs. Linear Model with Slope Equal to Zero (Test of No Effect across Concentrations with Similar y-intercept)

	χ^2 test value	df	p-value
Buckeye	35.6316	2	0.0000
NRL 502W	17.0794	1	0.0000
ECOPOL A	3.9978	2	0.1355
Re-Healing	3.5482	2	0.1696
Enviro	3.8676	2	0.1446
20-391	1.5071	2	0.4707
Avio Green	0.8541	2	0.6524

Note:

p-value < 0.05 indicates rejection of a flat response.

Table H-10. ANOVA Table for Effect of Dose on Log-transformed Female CD-1™ Mice Ovary Weight (ln(g)) after Exposure to Avio Green for 28 Days

Effect	SSn	SSd	DFn	DFd	F	p	p<.05	gn ²
Dose	0.908	2.806	5	52	3.367	0.01	*	0.245

Table H-11. Dunnett's Test Results for Contrasts Against Control Dose (0 mg/kg-d) for Log-transformed Ovary Weight (ln(g)) for Female CD-1™ Mice Exposed to Avio Green for 28 Days

Contrast	Difference	Lower CI	Upper CI	p
125-0	0.1987	-0.0712	0.4686	0.2171
250-0	0.2717	0.0018	0.5416	0.0480
500-0	-0.0425	-0.3123	0.2274	0.9931
1,000-0	-0.0486	-0.3258	0.2287	0.9888
2,000-0	0.0083	-0.2690	0.2855	1.0000

Note:

CI are 95th percentile confidence interval uppers and lowers.

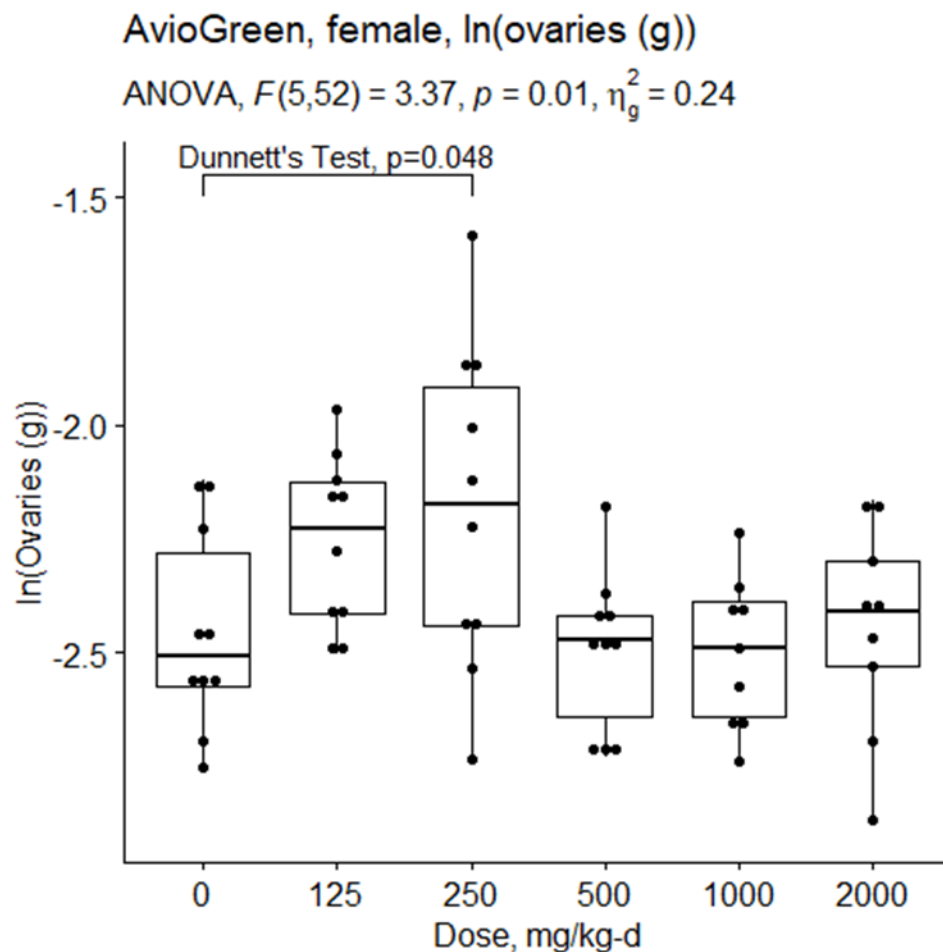


Figure H-3. Boxplot, Data, and Statistical Output For Log-transformed Ovary Weight (ln(g)) for Female CD-1™ Mice Exposed to Avio Green for 28 Days in Increasing Concentrations

Note: Boxes are IQR with median central line and whiskers extend to 1.5*IQR away from median or extreme data point, whichever is less/more. Data are binned by 1/30th the range of the data. ANOVA statistics are included as well as p -values for Dunnett's test comparisons that are < 0.05 . Non-monotonic trend with treatment indicates low value significance, likely unrelated to treatment.

Appendix I

Summarized Micronucleus Assay Results

Refer to the Glossary at the end of this report for definitions of the acronyms used on the tables in this appendix.

Table I-1. ANOVA Table for Effects of Dose and Product on % Micronucleated Reticulocytes (MN-RET) and Interaction Effect

Effect	SSn	SSd	DFn	DFd	F	p	p<.05	g η^2
Dose	0.011	0.358	2	204	3.128	0.0460	*	0.030
Formulation	0.050	0.358	6	204	4.791	0.0001	*	0.124
Dose:Formulation	0.011	0.358	12	204	0.519	0.9010		0.030

Table I-2. ANOVA Table for Main Effect of Product on % MN-RET Ignoring Dose

Effect	SSn	SSd	DFn	DFd	F	p	p<.05	g η^2
Formulation	0.051	0.38	7	218	4.218	2e-04	*	0.119

Table I-3. ANOVA Table for Main Effect of Dose on % MN-RET Ignoring Formulation

Effect	SSn	SSd	DFn	DFd	F	p	p<.05	g η^2
Dose	0.012	0.419	3	222	2.116	0.099		0.028

Table I-4. Summary Table of Tukey's HSD Test for All Products Contrasts with Bonferroni Adjusted p-value and Upper and Lower Confidence Intervals for Differences

Effect	Contrasts		Difference	CI		p Adjusted
				Lower	Upper	
Formulation	Control	Avio Green	-0.0122	-0.0480	0.0236	0.9670
Formulation	Control	NRL 502W	0.0010	-0.0340	0.0360	1.0000
Formulation	Control	Re-Healing	-0.0031	-0.0386	0.0324	1.0000
Formulation	Control	ECOPOL A	-0.0202	-0.0558	0.0153	0.6590
Formulation	Control	Enviro	-0.0149	-0.0502	0.0203	0.8990
Formulation	Control	20-391	-0.0240	-0.0590	0.0110	0.4180
Formulation	Control	Buckeye	0.0257	-0.0093	0.0606	0.3290
Formulation	Avio Green	NRL 502W	0.0132	-0.0207	0.0471	0.9330
Formulation	Avio Green	Re-Healing	0.0091	-0.0253	0.0436	0.9920
Formulation	Avio Green	ECOPOL A	-0.0080	-0.0425	0.0264	0.9970
Formulation	Avio Green	Enviro	-0.0027	-0.0369	0.0314	1.0000
Formulation	Avio Green	20-391	-0.0118	-0.0457	0.0221	0.9630
Formulation	Avio Green	Buckeye	0.0379	0.0040	0.0718	0.0166
Formulation	NRL 502W	Re-Healing	-0.0041	-0.0377	0.0295	1.0000
Formulation	NRL 502W	ECOPOL A	-0.0212	-0.0548	0.0123	0.5270
Formulation	NRL 502W	Enviro	-0.0159	-0.0492	0.0173	0.8240
Formulation	NRL 502W	20-391	-0.0250	-0.0580	0.0080	0.2870
Formulation	NRL 502W	Buckeye	0.0247	-0.0083	0.0576	0.3040
Formulation	Re-Healing	ECOPOL A	-0.0171	-0.0513	0.0170	0.7860
Formulation	Re-Healing	Enviro	-0.0118	-0.0457	0.0220	0.9620
Formulation	Re-Healing	20-391	-0.0209	-0.0545	0.0127	0.5480
Formulation	Re-Healing	Buckeye	0.0288	-0.0048	0.0623	0.1530
Formulation	ECOPOL A	Enviro	0.0053	-0.0285	0.0391	1.0000
Formulation	ECOPOL A	20-391	-0.0038	-0.0373	0.0298	1.0000
Formulation	ECOPOL A	Buckeye	0.0459	0.0123	0.0795	0.0011
Formulation	Enviro	20-391	-0.0091	-0.0423	0.0242	0.9910
Formulation	Enviro	Buckeye	0.0406	0.0074	0.0739	0.0057
Formulation	20-391	Buckeye	0.0497	0.0167	0.0826	0.0002

Note:

Importantly, only contrasts with control are meaningful.

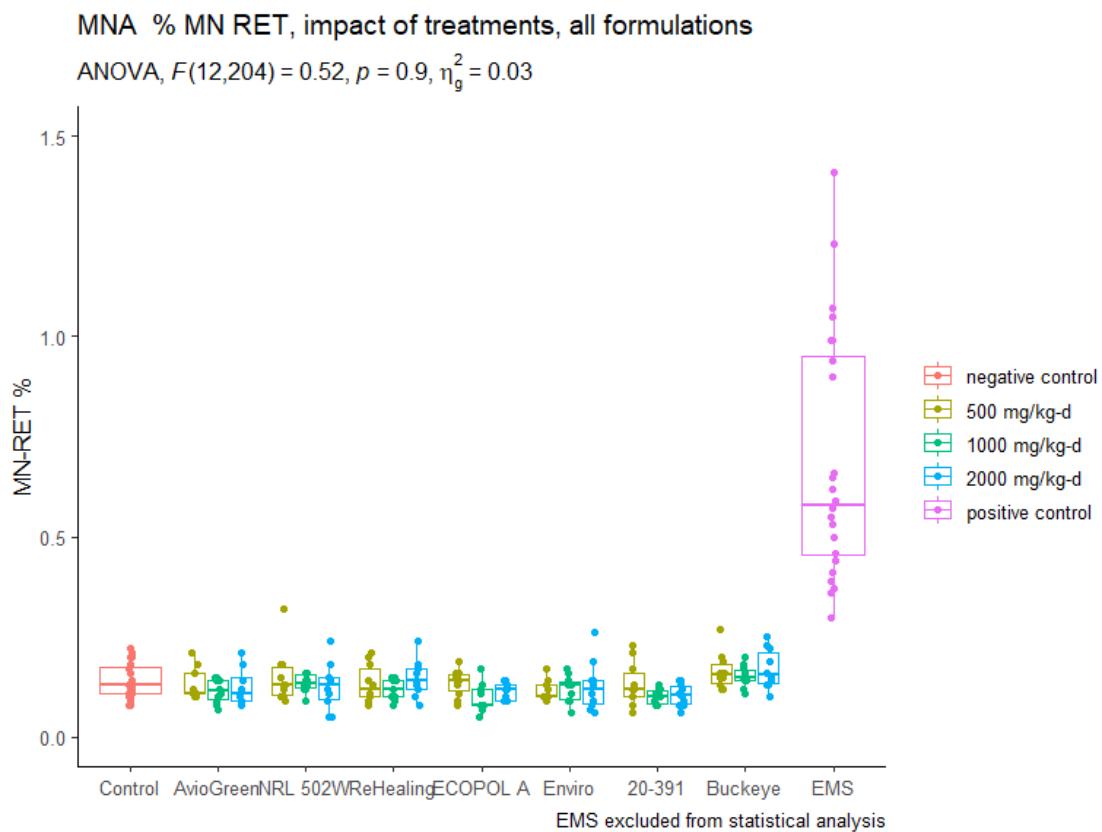


Figure I-1. Percent of Reticulocytes Micronucleated (MN-RET) For All Doses Across all Formulations Including Positive (EMS) and Negative Control

Note: All mice sampled here are males. ANOVA statistics included are for interaction effect between dose and formulation, excluding positive (EMS) treatment.

Appendix J

Summarized Clinical Chemistry and Hematology Results

Refer to the Glossary at the end of this report for definitions of the acronyms used on the tables in this appendix.

Table J-1. Clinical Chemistry: Avio Green

Male	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
ALB	Ranked	<0.001	No difference vs. controls	
ALB/GLOB	N	0.889		
ALT	LN	0.166		
AST	LN	0.200		
BUN	Ranked	0.004	No difference vs. controls	
BUN/CREA	LN	0.577		
CHOL	N	0.041	No difference vs. controls	
CREA	Ranked	0.041	No difference vs. controls	
GLOB	Ranked	<0.001	500 (0.027), 1,000 (0.004)	Decrease
GLUC	N	<0.001	2,000 (0.002)	Increase
TP	N	<0.001	500 (0.014), 1,000 (0.001), 2,000 (0.028)	Decrease
TRIG	LN	0.272		
Female	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
ALB	Ranked	0.761		
ALB/GLOB	N	0.055		
ALT	Ranked	0.371		
AST	Ranked	0.076		
BUN	Ranked	0.278		
BUN/CREA	Ranked	0.124		
CHOL	N	0.178		
CREA	Ranked	0.322		
GLOB	LN	0.084		
GLUC	N	0.392		
TP	N	0.348		
TRIG	N	0.017	1,000 (0.040), 2,000 (0.031)	Decrease

Table J-2. Clinical Chemistry: Buckeye

Male	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
ALB	Ranked	0.109		
ALB/GLOB	Ranked	0.311		
ALT	Ranked	<0.001	500 (0.008), 1,000 (0.020), 2,000 (0.004)	Increase
AST	Ranked	<0.001	500 (<0.001), 1,000 (<0.001), 2,000 (<0.001)	Increase
BUN	Ranked	0.003	500 (0.047), 2,000 (0.035)	Increase
BUN/CREA	N	0.075		
CHOL	N	0.224		
CREA	Ranked	0.077		
GLOB	Ranked	0.093		
GLUC	N	0.002	500 (0.024), 2,000 (0.001)	Increase
TP	Ranked	0.099		
TRIG	LN	0.049	No difference vs. controls	
Female	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
ALB	Ranked	0.194		
ALB/GLOB	N	0.567		
ALT	Ranked	0.744		
AST	LN	0.991		
BUN	Ranked	0.778		
BUN/CREA	Ranked	0.643		
CHOL	N	0.181		
CREA	Ranked	0.975		
GLOB	LN	0.937		
GLUC	Ranked	0.313		
TP	LN	0.744		
TRIG	LN	0.983		

Table J-3. Clinical Chemistry: ECOPOL A

Male	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
ALB	Ranked	0.016	No difference vs. controls	
ALB/GLOB	Ranked	0.237		
ALT	Ranked	0.316		
AST	LN	0.094		
BUN	Ranked	0.007	500 (0.019), 1,000 (0.004)	Increase
BUN/CREA	Ranked	0.006	2,000 (0.032)	Increase
CHOL	N	0.271		
CREA	Ranked	0.176		
GLOB	Ranked	0.016	No difference vs. controls	
GLUC	LN	0.071		
TP	N	0.003	500 (0.031)	Decrease
TRIG	LN	0.204		
Female	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
ALB	Ranked	0.932		
ALB/GLOB	N	0.707		
ALT	LN	0.509		
AST	LN	0.472		
BUN	Ranked	0.856		
BUN/CREA	LN	0.059		
CHOL	LN	0.985		
CREA	Ranked	0.079		
GLOB	Ranked	0.429		
GLUC	N	0.312		
TP	Ranked	0.791		
TRIG	N	0.704		

Table J-4. Clinical Chemistry: Enviro USP

Male	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
ALB	Ranked	<0.001	500 (0.002), 1,000 (0.004), 2,000 (0.015)	Decrease
ALB/GLOB	N	0.832		
ALT	Ranked	0.002	500 (0.030), 1,000 (0.002), 2,000 (0.019)	Increase
AST	LN	<0.001	No difference vs. controls	
BUN	Ranked	<0.001	1,000 (0.001)	Increase
BUN/CREA	LN	0.052	No difference vs. controls	
CHOL	N	0.024	No difference vs. controls	
CREA	Ranked	0.254		
GLOB	Ranked	0.028	500 (0.033)	Decrease
GLUC	N	0.001	500 (0.006), 1,000 (<0.001), 2,000 (0.034)	Increase
TP	Ranked	<0.001	500 (<0.001), 1,000 (0.014), 2,000 (0.002)	Decrease
TRIG	N	0.430		
Female	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
ALB	Ranked	0.180		
ALB/GLOB	LN	0.893		
ALT	Ranked	0.148		
AST	N	0.357		
BUN	Ranked	0.077		
BUN/CREA	LN	0.660		
CHOL	N	0.293		
CREA	Ranked	0.193		
GLOB	N	0.998		
GLUC	N	0.815		
TP	N	0.681		
TRIG	LN	0.110		

Table J-5. Clinical Chemistry: NFD 20-391

Male	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
ALB	Ranked	0.118		
ALB/GLOB	N	0.611		
ALT	LN	0.020	No difference vs. controls	
AST	Ranked	0.001	500 (0.016), 1,000 (0.010)	Increase
BUN	LN	0.087		
BUN/CREA	LN	0.281		
CHOL	N	0.217		
CREA	Ranked	0.128		
GLOB	Ranked	0.291		
GLUC	Ranked	0.014	No difference vs. controls	
TP	N	0.031	2,000 (0.014)	Decrease
TRIG	LN	0.045	No difference vs. controls	
Female	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
ALB	LN	0.099		
ALB/GLOB	N	0.478		
ALT	LN	0.227		
AST	LN	0.319		
BUN	Ranked	0.165		
BUN/CREA	LN	0.185		
CHOL	N	0.237		
CREA	Ranked	0.067		
GLOB	Ranked	0.779		
GLUC	N	0.484		
TP	N	0.625		
TRIG	LN	0.790		

Note:

Shading indicates.....

Table J-6. Clinical Chemistry: NRL 502W

Male	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
ALB	Ranked	0.025	No difference vs. controls	
ALB/GLOB	N	0.322		
ALT	LN	0.101		
AST	N	0.049	1,000 (0.024)	Increase
BUN	Ranked	0.263		
BUN/CREA	LN	0.935		
CHOL	N	0.217		
CREA	Ranked	0.671		
GLOB	N	0.086		
GLUC	LN	<0.001	500 (0.003), 1,000 (0.001), 2,000 (0.014)	Increase
TP	N	0.025	1,000 (0.047), 2,000 (0.029)	Decrease
TRIG	N	0.127		
Female	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
ALB	Ranked	0.766		
ALB/GLOB	N	0.829		
ALT	Ranked	0.660		
AST	Ranked	0.955		
BUN	Ranked	0.927		
BUN/CREA	LN	0.862		
CHOL	N	0.277		
CREA	Ranked	0.628		
GLOB	Ranked	0.954		
GLUC	N	0.615		
TP	N	0.981		
TRIG	N	0.232		

Table J-7. Clinical Chemistry: Re-Healing

Male	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
ALB	N	0.011	500 (0.048)	Decrease
ALB/GLOB	N	0.076		
ALT	LN	0.442		
AST	LN	0.406		
BUN	LN	0.293		
BUN/CREA	LN	0.933		
CHOL	N	0.250		
CREA	Ranked	0.653		
GLOB	LN	<0.001	500 (<0.001), 1,000 (0.022)	Decrease
GLUC	Ranked	<0.001	500 (<0.001), 1,000 (0.001)	Increase
TP	N	<0.001	500 (<0.001)	Decrease
TRIG	N	0.845		
Female	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
ALB	N	0.863		
ALB/GLOB	N	0.804		
ALT	Ranked	0.975		
AST	Ranked	0.436		
BUN	Ranked	0.008	No difference vs. controls	
BUN/CREA	LN	0.918		
CHOL	LN	0.061		
CREA	Ranked	0.507		
GLOB	Ranked	0.898		
GLUC	Ranked	0.827		
TP	Ranked	0.781		
TRIG	LN	0.467		

Table J-8. Hematology: Avio Green

Female	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
WBC	LN	0.534		
RBC	N	0.930		
HGB	Ranked	0.743		
HCT	N	0.897		
MCV	N	0.890		
MCH	Ranked	0.831		
MCHC	N	0.433		
PLT	N	0.283		
RDW-SD	N	0.294		
RDW-CV	Ranked	0.357		
MPV	N	0.429		
NRBC	Ranked	0.682		
NRBC_p	Ranked	0.715		
NEUT	LN	0.024	250 (0.008), 1,000 (0.030), 2,000 (0.027)	Increase
NEUT_p	LN	0.011	250 (0.054), 2,000 (0.005)	Increase
LYMPH	LN	0.631		
LYMPH_p	Ranked	0.011	2,000 (0.005)	Decrease
MONO	LN	0.524		
MONO_p	Ranked	0.760		
EO	LN	0.407		
EO_p	LN	0.312		
BASO	Ranked	0.806		
BASO_p	Ranked	0.861		
RET	N	0.443		
RET_p	LN	0.400		
IRF	Ranked	0.260		
RET_He	N	0.605		
NEU/LYM	Ranked	0.008	2,000 (0.003)	Increase

Table J-9. Hematology: Avio Green (Without 500, 1,000, 2,000 mg/kg-d treatment groups)

Male	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
WBC	LN	0.282		
RBC	N	0.557		
HGB	N	0.671		
HCT	N	0.820		
MCV	N	0.406		
MCH	N	0.184		
MCHC	N	0.097		
PLT	Ranked	0.653		
RDW-SD	N	0.210		
RDW-CV	N	0.447		
MPV	N	0.568		
NRBC	Ranked	0.691		
NRBC_p	LN	0.767		
NEUT	Ranked	0.077		
NEUT_p	Ranked	0.803		
LYMPH	N	0.359		
LYMPH_p	Ranked	0.916		
MONO	LN	0.876		
MONO_p	LN	0.817		
EO	LN	0.357		
EO_p	LN	0.272		
BASO	Ranked	0.708		
BASO_p	Ranked	0.627		
RET	N	0.389		
RET_p	LN	0.155		
IRF	N	0.556		
RET_He	Ranked	0.138		
NEU/LYM	Ranked	0.816		

Table J-10. Hematology: Buckeye

Female	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
WBC	LN	0.095		
RBC	Ranked	0.664		
HGB	Ranked	0.867		
HCT	Ranked	0.952		
MCV	N	0.244		
MCH	N	0.863		
MCHC	N	0.237		
PLT	Ranked	0.863		
RDW-SD	Ranked	0.026	250 (0.041)	Increase
RDW-CV	Ranked	0.081		
MPV	N	0.300		
NRBC	Ranked	0.562		
NRBC_p	LN	0.531		
NEUT	N	<0.001	125 (0.010), 250 (0.002), 2,000 (0.010)	Decrease
NEUT_p	N	0.014	125 (0.056), 250 (0.017), 2,000 (0.008)	Decrease
LYMPH	LN	0.198		
LYMPH_p	Ranked	0.532		
MONO	LN	0.337		
MONO_p	LN	0.990		
EO	Ranked	0.292		
EO_p	Ranked	0.583		
BASO	Ranked	0.436		
BASO_p	LN	0.216		
RET	N	0.064		
RET_p	Ranked	0.036	No difference vs. controls	
IRF	Ranked	0.044	No difference vs. controls	
RET_He	Ranked	0.350		
NEU/LYM	LN	0.060		

Table J-11. Hematology: Buckeye (Without 500, 1,000, 2,000 mg/kg-d treatment groups)

Male	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
WBC	N	0.919		
RBC	N	0.450		
HGB	N	0.474		
HCT	N	0.757		
MCV	N	0.464		
MCH	N	0.909		
MCHC	N	0.166		
PLT	Ranked	0.151		
RDW-SD	N	0.614		
RDW-CV	Ranked	0.953		
MPV	N	0.083		
NRBC	Ranked	0.532		
NRBC_p	LN	0.694		
NEUT	N	0.803		
NEUT_p	Ranked	0.692		
LYMPH	LN	0.896		
LYMPH_p	Ranked	0.523		
MONO	N	0.947		
MONO_p	N	0.936		
EO	Ranked	0.434		
EO_p	LN	0.094		
BASO	Ranked	0.193		
BASO_p	LN	0.982		
RET	N	0.856		
RET_p	N	0.925		
IRF	N	0.339		
RET_He	N	0.999		
NEU/LYM	Ranked	0.416		

Table J-12. Hematology: ECOPOL A

Female	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
WBC	N	0.518		
RBC	N	0.422		
HGB	Ranked	0.069		
HCT	Ranked	0.188		
MCV	Ranked	0.784		
MCH	N	0.886		
MCHC	N	0.070		
PLT	Ranked	0.174		
RDW-SD	N	0.070		
RDW-CV	N	0.018	500 (0.012)	Increase
MPV	N	0.175		
NRBC	Ranked	0.133		
NRBC_p	Ranked	0.207		
NEUT	LN	0.110		
NEUT_p	LN	0.032	No difference vs. controls	
LYMPH	N	0.452		
LYMPH_p	N	0.152		
MONO	N	0.213		
MONO_p	N	0.501		
EO	LN	0.663		
EO_p	Ranked	0.378		
BASO	Ranked	0.168		
BASO_p	Ranked	0.170		
RET	N	0.017	No difference vs. controls	
RET_p	N	0.019	500 (0.037)	Increase
IRF	N	0.271		
RET_He	N	0.960		
NEU/LYM	LN	0.034	No difference vs. controls	

Table J-13. Hematology: ECOPOL A (Without 500, 1,000, 2,000 mg/kg-d treatment groups)

Male	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
WBC	N	0.890		
RBC	Ranked	0.664		
HGB	N	0.823		
HCT	N	0.816		
MCV	N	0.610		
MCH	N	0.692		
MCHC	Ranked	0.585		
PLT	N	0.623		
RDW-SD	N	0.603		
RDW-CV	LN	0.737		
MPV	N	0.694		
NRBC	Ranked	0.127		
NRBC_p	LN	0.632		
NEUT	N	0.181		
NEUT_p	LN	0.053		
LYMPH	N	0.624		
LYMPH_p	N	0.117		
MONO	N	0.922		
MONO_p	LN	0.717		
EO	Ranked	0.920		
EO_p	Ranked	0.882		
BASO	Ranked	0.230		
BASO_p	LN	0.749		
RET	N	0.871		
RET_p	N	0.884		
IRF	Ranked	0.327		
RET_He	N	0.818		
NEU/LYM	LN	0.061		

Table J-14. Hematology: Enviro

Female	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
WBC	LN	0.549		
RBC	N	0.949		
HGB	N	0.988		
HCT	Ranked	0.925		
MCV	N	0.608		
MCH	N	0.309		
MCHC	N	0.508		
PLT	Ranked	0.778		
RDW-SD	N	0.697		
RDW-CV	N	0.483		
MPV	N	0.116		
NRBC	Ranked	0.451		
NRBC_p	LN	0.282		
NEUT	N	0.706		
NEUT_p	Ranked	0.460		
LYMPH	LN	0.638		
LYMPH_p	Ranked	0.821		
MONO	Ranked	0.668		
MONO_p	LN	0.581		
EO	Ranked	0.546		
EO_p	LN	0.836		
BASO	Ranked	0.135		
BASO_p	Ranked	0.196		
RET	N	0.080		
RET_p	N	0.038	125 (0.030)	Increase
IRF	Ranked	0.339		
RET_He	Ranked	0.152		
NEU/LYM	Ranked	0.842		

Table J-15. Hematology: Enviro (Without 500, 1,000, 2,000 mg/kg-d treatment groups)

Male	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
WBC	LN	0.860		
RBC	LN	0.603		
HGB	N	0.125		
HCT	LN	0.575		
MCV	N	0.992		
MCH	N	0.201		
MCHC	Ranked	0.024	125 (0.013)	Increase
PLT	Ranked	0.658		
RDW-SD	N	0.722		
RDW-CV	N	0.857		
MPV	N	0.273		
NRBC	Ranked	0.105		
NRBC_p	Ranked	0.168		
NEUT	N	0.289		
NEUT_p	N	0.352		
LYMPH	N	0.766		
LYMPH_p	Ranked	0.506		
MONO	Ranked	0.685		
MONO_p	LN	0.128		
EO	Ranked	0.887		
EO_p	N	0.637		
BASO	Ranked	0.845		
BASO_p	LN	0.231		
RET	N	0.085		
RET_p	Ranked	0.433		
IRF	N	0.505		
RET_He	LN	0.582		
NEU/LYM	LN	0.418		

Table J-16. Hematology: NFD 20-391

Female	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
WBC	N	0.975		
RBC	N	0.821		
HGB	N	0.885		
HCT	N	0.923		
MCV	N	0.536		
MCH	N	0.464		
MCHC	N	0.698		
PLT	N	0.662		
RDW-SD	N	0.265		
RDW-CV	N	0.115		
MPV	N	0.271		
NRBC	Ranked	0.765		
NRBC_p	LN	0.955		
NEUT	LN	0.577		
NEUT_p	LN	0.966		
LYMPH	N	0.986		
LYMPH_p	Ranked	0.901		
MONO	Ranked	0.461		
MONO_p	LN	0.228		
EO	Ranked	0.080		
EO_p	Ranked	0.066		
BASO	Ranked	0.306		
BASO_p	Ranked	0.322		
RET	N	0.712		
RET_p	Ranked	0.657		
IRF	Ranked	0.715		
RET_He	N	0.235		
NEU/LYM	Ranked	0.965	Note trend	

Table J-17. Hematology: NFD 20-391 (Without 500, 1,000, 2,000 mg/kg-d treatment groups)

Male	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
WBC	LN	0.103		
RBC	N	0.607		
HGB	N	0.156		
HCT	N	0.384		
MCV	Ranked	0.977		
MCH	Ranked	0.666		
MCHC	N	0.362		
PLT	Ranked	0.396		
RDW-SD	Ranked	0.394		
RDW-CV	LN	0.479		
MPV	N	0.016	250 (0.010)	Decrease
NRBC	Ranked	0.640		
NRBC_p	LN	0.460		
NEUT	LN	0.174		
NEUT_p	N	0.838		
LYMPH	LN	0.111		
LYMPH_p	N	0.856		
MONO	LN	0.337		
MONO_p	LN	0.744		
EO	LN	0.085		
EO_p	N	0.306		
BASO	Ranked	0.201		
BASO_p	LN	0.922		
RET	N	0.860		
RET_p	N	0.830		
IRF	N	0.362		
RET_He	N	0.587		
NEU/LYM	N	0.810		

Table J-18. Hematology: NRL 502W

Female	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
WBC	LN	0.143		
RBC	Ranked	0.553		
HGB	N	0.534		
HCT	N	0.333		
MCV	N	0.711		
MCH	N	0.990		
MCHC	N	0.314		
PLT	N	0.554		
RDW-SD	Ranked	0.575		
RDW-CV	Ranked	0.597		
MPV	N	0.462		
NRBC	Ranked	0.520		
NRBC_p	Ranked	0.513		
NEUT	LN	0.108		
NEUT_p	LN	0.190		
LYMPH	N	0.163		
LYMPH_p	N	0.378		
MONO	N	0.210		
MONO_p	LN	0.685		
EO	Ranked	0.538		
EO_p	LN	0.753		
BASO	Ranked	0.605		
BASO_p	Ranked	0.723		
RET	N	0.394		
RET_p	N	0.292		
IRF	Ranked	0.275		
RET_He	N	0.328		
NEU/LYM	LN	0.185		

Table J-19. Hematology: NRL 502W (Without 500, 1,000, 2,000 mg/kg-d treatment groups)

Male	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
WBC	N	0.965		
RBC	N	0.006	125 (0.010), 250 (0.008)	Decrease
HGB	N	0.025	125 (0.045), 250 (0.026)	Decrease
HCT	N	0.033	125 (0.050), 250 (0.037)	Decrease
MCV	N	0.477		
MCH	N	0.271		
MCHC	N	0.870		
PLT	Ranked	0.975		
RDW-SD	N	0.158		
RDW-CV	N	0.325		
MPV	N	0.638		
NRBC	Ranked	0.428		
NRBC_p	Ranked	0.779		
NEUT	LN	0.423		
NEUT_p	N	0.740		
LYMPH	N	0.990		
LYMPH_p	Ranked	0.346		
MONO	LN	0.948		
MONO_p	N	0.775		
EO	LN	0.821		
EO_p	N	0.973		
BASO	Ranked	0.356		
BASO_p	Ranked	0.212		
RET	N	0.537		
RET_p	N	0.726		
IRF	N	0.278		
RET_He	N	0.396		
NEU/LYM	LN	0.476		

Table J-20. Hematology: Re-Healing

Female	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
WBC	N	0.117		
RBC	N	0.200		
HGB	N	0.054		
HCT	N	0.114		
MCV	N	0.208		
MCH	N	0.351		
MCHC	N	0.380		
PLT	Ranked	0.858		
RDW-SD	N	0.095		
RDW-CV	N	0.139		
MPV	N	0.967		
NRBC	Ranked	0.982		
NRBC_p	LN	0.003	500 (0.013)	Decrease
NEUT	LN	0.413		
NEUT_p	LN	0.817		
LYMPH	N	0.112		
LYMPH_p	Ranked	0.432		
MONO	LN	0.583		
MONO_p	LN	0.052		
EO	LN	0.707		
EO_p	LN	0.509		
BASO	Ranked	0.754		
BASO_p	Ranked	0.765		
RET	N	0.676		
RET_p	N	0.519		
IRF	N	0.269		
RET_He	N	0.053		
NEU/LYM	Ranked	0.705		

Table J-21. Hematology: Re-Healing (Without 500, 1,000, 2,000 mg/kg-d treatment groups)

Male	Distribution	ANOVA	Dunnet's (p-value)	
Parameter	Tested	p-value	0 vs. Dose	Direction
WBC	N	0.569		
RBC	N	0.421		
HGB	N	0.344		
HCT	N	0.349		
MCV	N	0.405		
MCH	N	0.422		
MCHC	Ranked	0.503		
PLT	N	0.426		
RDW-SD	N	0.440		
RDW-CV	N	0.854		
MPV	N	0.421		
NRBC	Ranked	0.784		
NRBC_p	Ranked	0.830		
NEUT	Ranked	0.424		
NEUT_p	Ranked	0.179		
LYMPH	N	0.613		
LYMPH_p	Ranked	0.296		
MONO	N	0.878		
MONO_p	N	0.577		
EO	Ranked	0.279		
EO_p	N	0.759		
BASO	Ranked	0.098		
BASO_p	LN	0.696		
RET	N	0.667		
RET_p	N	0.218		
IRF	N	0.648		
RET_He	N	0.724		
NEU/LYM	Ranked	0.167		

Appendix K

Summarized Thyroid Hormone Assay Results

Table K-1. Estimated Marginal Mean Contrasts for NRL 502W Female Mice, T3 (ng/mL) with Plate Number as Covariate

Contrasts	Difference	SE	df	t ratio	p
0 - 1,000	-4.27	1.91	11	-2.228	0.1101
0 – 2,000	-5.31	1.62	11	-3.272	0.0188

Note: Only contrasts with control display for brevity, all others were calculated.

Table K-2. Estimated Marginal Mean Contrasts for Avio Green Female Mice, T4 (ng/mL) with Plate Number as Covariate

Contrasts	Difference	SE	df	t ratio	p
0 - 1,000	31.6	25.9	15	1.221	0.4597
0 – 2,000	114.1	29.5	15	3.871	0.0040

Note: Only contrasts with control display for brevity, all others were calculated.

.

GLOSSARY

AFFF	Aqueous Film Forming Foam
AIC	Akaike Information Criterion
ANCOVA	Analysis of Covariance
ANOVA	Analysis of Variance
APHC	U.S. Army Public Health Center
ASTM	American Society for Testing and Materials
°C	Degrees Celsius
CASRN	Chemical Abstracts Service Registry Number
CO ₂	Carbon dioxide
DGBE	2-(2-Butoxyethoxy)ethanol / Diethylene glycol monobutyl ether
diH ₂ O	Deionized water
dL	deciliter
DNA	Deoxyribonucleic Acid
DoD	Department of Defense
EMS	Ethyl methanesulphonate
ESTCP	Environmental Security Technology Certification Program
F	Female
°F	Degrees Fahrenheit
FMS	flatulent mouse syndrome
FY	Fiscal Year
g	Gram
GC-MS	Gas chromatography-mass spectrometry

GHS	Globally Harmonized System
GI	Gastrointestinal
GLP	Good Laboratory Practices
HCT	Hematocrit
HG	2-methyl-2,4-pentanediol / Hexylene glycol
HGB	Hemoglobin
IQR	Inner Quartile Range
kg	Kilogram
L	Liter
LD ₅₀	Median (50%) Lethal Dose
LOAEL	Lowest Observed Adverse Effect Level
LOQ	Limit of Quantitation
M	Male
mg	Milligram
mg/mL	Milligrams per milliliter
mg/kg-d	Milligrams per kilogram per day
MILSPEC	Military Specification
MIPR	Military Interdepartmental Purchase Request
mL	Milliliter
MNA	Micronucleus Assay
NA	not applicable
NDAA	National Defense Authorization Act
NE	No effect

ng	Nanogram
NOAEL	No Observed Adverse Effect Level
NRL	Naval Research Lab
PFAS	Per- and Polyfluoroalkyl Substances
RBC	Red blood cell
SDS	Safety Data Sheet
SERDP	Strategic Environmental Research and Development Program
T3	Triiodothyronine
T4	Thyroxine
TSH	Thyroid-stimulating hormone
µg	Micrograms
µL	Microliters
v/v	Volume per volume
w/w	Weight per weight