

AR 226 - 3318

TRADE SECRET*Study Title*

H-25436: Early Life-Stage Toxicity to Rainbow Trout, *Oncorhynchus mykiss*

TEST GUIDELINES: U.S. EPA OPPTS, 850.1400 (1996)

U.S. EPA TSCA, EG-11 (1982)

OECD TG 210 (1992)

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STUDY COMPLETED ON: July 28, 2004

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[REDACTED]
[REDACTED]

SPONSOR: E.I. du Pont de Nemours and Company
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GOOD LABORATORY PRACTICE COMPLIANCE STATEMENT

This study was conducted in compliance with U.S. EPA TSCA (40 CFR part 792) Good Laboratory Practice Standards, which are consistent with the OECD Principles of Good Laboratory Practice (as revised in 1997) published in ENV/MC/CHEM(98)17 and MAFF Japan Good Laboratory Practice Standards (59 NohSan Number 3850).

Test substance characterization and stability analyses were performed at DuPont Regional Analytical Services (RAS), Deepwater, New Jersey. None of the aforementioned analyses were performed under Good Laboratory Practice Standards; however, the analyses were conducted in compliance with ISO 9002 regulations. All of the analyses are considered sufficient for the purposes of this study.

Applicant / Sponsor: E.I. du Pont de Nemours and Company
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Robert A. Hoke, Ph.D.

Senior Research Ecotoxicologist and Manager

28 July 2004

Date

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DuPont Representative

Date

QUALITY ASSURANCE DOCUMENTATION



The conduct of this study has been subjected to periodic Quality Assurance inspections. The dates of inspection are indicated below.

<i>Phase Audited</i>	<i>Audit Dates</i>	<i>Dates Reported to Study Director and Management</i>
Conduct:	July 3, 23, 24, 31, 2003; August 14, 2003; September 3, 4, 2003; October 3, 2003; December 16, 22, 24, 2003; February 4, 2004	July 23, 2003; October 6, 2003; December 16, 22, 24, 2003; February 5, 2004
Report/Records:	May 26, 2004; June 1-3, 2004	June 3, 2004

Reported by:

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Quality Assurance Auditor

28-JULY-2004
Date

CERTIFICATION

We, the undersigned, declare that this report provides an accurate evaluation of data obtained from this study.

Analytical Evaluation by: Bogdan Szostek 28-JUL-2004
Bogdan Szostek, Ph.D.
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Statistical Analyses by: John W. Green 28-Jul-2004
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Issued by Study Director: Robert A. Hoke 28 July 2004
Robert A. Hoke, Ph.D.
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STUDY INFORMATION

9th Collective Nomenclature: [REDACTED]

Synonyms/Codes: [REDACTED]

- H-25436

Haskell Number: 25436

CAS Registry Number: [REDACTED]

Composition: [REDACTED]

Purity: [REDACTED]

Known Impurities: [REDACTED]

Physical Characteristics: Tan to light brown paste

Stability: The test substance appeared to be stable under the conditions of the study; no evidence of instability was observed.

Study Initiated/Completed: June 3, 2003 / (see report cover page)

In-Life Initiated/Completed: November 6, 2003 / February 4, 2004

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STUDY PERSONNEL

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SUMMARY

GUIDELINES: The effect of H-25436 [REDACTED] on hatching, growth and survival of rainbow trout, *Oncorhynchus mykiss*, embryos, alevins, and fingerlings was assessed in a flow-through, 90-day early life-stage toxicity test in accordance with the appropriate Good Laboratory Practice standards and test guidelines (U.S. EPA TSCA EG-11; U.S. EPA OPPTS 850.1400, OECD 210).

NOMINAL TEST

CONCENTRATIONS: 0.30, 0.63, 1.3, 2.5, and 5.0 mg/L H-25436, dilution water control, isopropyl alcohol (IPA) control

MEASURED TEST

CONCENTRATIONS: 0.35, 0.71, 1.5, 2.8, and 5.1 mg/L H-25436 with [REDACTED]
[REDACTED] none detected in dilution water and IPA controls (LOD, 0.0002 mg/L)

0.34, 0.70, 1.5, 2.7, and 5.0 mg/L H-25436 with [REDACTED]
[REDACTED] none detected in dilution water and IPA controls (LOD, 0.00028 mg/L)

0.35, 0.71, 1.5, 2.8, and 5.4 mg/L H-25436 with [REDACTED]
[REDACTED] none detected in dilution water and IPA controls (LOD, 0.0004 mg/L)

AGE OF TEST

ORGANISMS: Approximately 23 hours post-fertilization at test start

SOURCE OF

TEST ORGANISMS: Unfertilized eggs and sperm (collected from 3 female and 1 male brood fish) were obtained from Troutlodge Inc., (Sumner, Washington, USA)

TEST DESIGN: A total of 80 embryos were exposed per concentration (20 embryos per embryo cup, 2 cups per replicate, 2 replicates per concentration) at test start. On day 46, after swim-up had begun in the dilution water control, the fingerlings were thinned to a total of 30 fish per concentration (15 fish per replicate, 2 replicates per concentration). Analytical verification of H-25436 concentrations was made on test solutions sampled on day -1, day 0, once weekly, and on day 90 at test end. Additional samples were submitted for analysis as warranted.

Test solutions were supplied to each replicate test chamber by a continuous flow metering system at a rate of approximately 7.5 L per hour (approximately 24, 7.5-L test solution volume additions per day). Embryos and alevins were held in relative darkness until day 40 and then held under a photoperiod of 16 hours light and 8 hours darkness (which included 30 minutes of transitional light between light and dark intervals) for the remainder of the study. After thinning, the fingerlings were fed newly-hatched brine shrimp (days 46-54) or newly-hatched brine shrimp and trout chow (days 55-89). Test solutions were maintained between 11.7 and 12.0°C (mean 11.8°C). Daily observations were made for assessment of number of dead eggs at hatching, first and last day of hatching, first day of swim-up, survival and abnormalities from hatching to thinning, and survival and abnormalities from thinning to test end. Standard length and blotted wet weight of surviving fingerlings were determined at test end.

CONCLUSION: The NOEC (No Observable Effect Concentration) for H-25436 in a 90-day early life-stage toxicity study using rainbow trout, *Oncorhynchus mykiss*, was 1.3 mg/L based on nominal H-25436 concentrations, last day of hatching and the first-day of swim-up. The LOEC (lowest observed effect concentration) and MATC (maximum acceptable toxicant concentration), for the same endpoints were 2.5 and 1.8 mg/L, respectively. The NOEC value for all other test endpoints was > 5.0 mg/L.

STUDY

COMPLETION: (see report cover page)

INTRODUCTION

The purpose of this study was to assess the early life-stage toxicity of H-25436 to embryos, alevins, and fingerlings of rainbow trout, *Oncorhynchus mykiss*, in a flow-through, 90-day test.

MATERIALS AND METHODS

A. Test Guidelines

Except as noted below, the study design complies with the following test guidelines:

- U.S. Environmental Protection Agency (EPA) (1982). TSCA EG-11, Fish Early Life Stage Toxicity Test.⁽¹⁾
 - U.S. Environmental Protection Agency (EPA) (1996). OPPTS 850.1400, Fish Early Life Stage Toxicity Test.⁽²⁾
 - Organisation for Economic Co-Operation and Development (OECD) (1992). TG 210. Fish Early Life Stage Toxicity Test.⁽³⁾
- A constant test target temperature of $10 \pm 2^\circ\text{C}$ was used for the duration of the test, not $10 \pm 2^\circ\text{C}$ for embryonic development and $12 \pm 2^\circ\text{C}$ for alevin and fingerling development (OECD 210). Based on the use of existing temperature control equipment, which is typical of that used in most facilities for fish early life-stage studies, the high probability of exceeding the guideline limit for temperature variation obviated temperature adjustment in the middle of the study.

This exception did not affect the objectives or the validity of the study.

B. Test Substance

The test substance, H-25436, was supplied by the sponsor as a tan to light brown paste. H-25436 contains [REDACTED]

H-25436 contains [REDACTED]

The solubility and stability of H-25436 in Haskell Laboratory well water (HLWW) were verified under test conditions based on the analytical recoveries of the target analytes.

A master stock solution (Stock A) was prepared at a concentration of approximately 50 mg/mL H-25436 in a 1:4 solution of isopropyl alcohol:HLWW. Secondary stock solutions were prepared by adding pre-determined volumes of Stock A to 500 mL volumetric flasks and

bringing the final volume to 500 mL with 100 mL of isopropyl alcohol and the appropriate remaining volume of HLWW. All stock solutions were prepared on a weekly basis throughout the study. Throughout the study, 25 and 50 mg/mL stock solutions were cloudy and gold in color with no visible precipitate. The 13 mg/mL stock solution was clear and gold in color with no visible precipitate. The 3 mg/mL and 6.3 mg/mL stock solutions were clear and pale gold in color with no visible precipitate. Test solutions were clear and colorless with no visible precipitate throughout the study. The total amount of H-25436 used in the definitive study was approximately 700 grams.

C. Dilution Water

Dilution water originated from the Haskell Laboratory well which is 378-feet deep and is cased and sealed to bedrock. The hardness of the HLWW is adjusted to approximately 100-140 mg/L as CaCO_3 by the flow-proportioned addition of CaCl_2 . The HLWW is then aerated, passed through a green sand filter to remove iron, and filtered through 50-, 10-, and 0.45- μm cartridge filters to remove particulates. The water is heated or chilled as appropriate and distributed through aged polyvinyl chloride piping. The dilution water is analyzed twice yearly for major anions and cations, metals, total organochlorine and organophosphate pesticides, and polychlorinated biphenyls (Table 1). The dilution water meets OECD⁽³⁾ and ASTM⁽⁴⁾ criteria and specifications.

D. Test Organism Culture

Rainbow trout, *Oncorhynchus mykiss*, unfertilized eggs and sperm were purchased from Troutlodge, Inc., Sumner, Washington. Eggs and sperm (collected from 3 female and 1 male brood fish) were received in separate plastic bags which were kept on ice (approximately 5.6°C) during shipping. Eggs and sperm were allowed to equilibrate to approximately 11.2°C in a water bath. Approximately 200 mL of the buffer solution containing glycine, TRIS, and sodium chloride was added to the bag containing the eggs. The purpose of the buffer was to remove any ovarian fluid that could impede fertilization. The bag was placed back into the water bath for approximately 20 minutes. The bag of eggs was taken out of the water bath and the buffer solution was removed. The bag of sperm was removed from the water bath and its contents were added to the bag of eggs. The bag was gently rocked back and forth to evenly distribute the sperm. Buffer solution (50 mL) was also added to the bag to help activate the sperm. The bag was again gently rocked back and forth and returned to the water bath for about 15 minutes. The embryos were removed from the waterbath and the buffer solution and sperm poured off of the embryos. The embryos were then rinsed with cold HLWW to remove residual sperm and other debris before being transferred to two stainless steel tanks, each containing 10 L of aerated HLWW, in a water bath (12.1°C) under darkness. Approximately 23 hours later, embryos were randomly placed into embryo cups to begin the test. The embryonic stage at the beginning of exposure was verified by selecting a representative sample of fertilized eggs, photographing, and comparing with literature sources.⁽⁵⁾ Embryos and larvae were identified by labels on aquaria and test chambers.

E. Test Methods^(1,2,3)

Five test substance concentrations, a dilution water control, and an isopropyl alcohol (IPA) control were used in this study. Nominal test substance concentrations were 0.30, 0.63, 1.3, 2.5, and 5.0 mg/L. The concentration of IPA in all test solutions, with the exception of the dilution water control which contained no solvent, was < 0.1 mL/L.

Test chambers (2 replicate chambers per concentration) were 13-L stainless steel aquaria (30 [length] x 14.5 [width] x 30 [height] cm), each holding approximately 7.5 liters of solution (16.5-cm liquid depth) and fitted with a screen mesh-covered overflow pipe. A recirculating waterbath was used to maintain temperature in the test chambers at $10 \pm 2^\circ\text{C}$. Test chambers were positioned in the waterbath using random numbers.

Test solutions were supplied to the test chambers under flow-through conditions by a continuous flow metering system. Metering system surfaces exposed to test solutions consisted of glass, Tygon[®], and Teflon[®]. The test substance metering system consisted of a Rainin Rabbit-Plus[™] peristaltic pump that delivered the stock solutions and IPA control continuously to the mixing chambers of the test system at approximately 1.5 mL per hour. Test solutions in the mixing chamber were stirred by a mini mixer. Test solutions were delivered continuously from the mixing chamber to each replicate test chamber at approximately 7.5 L per hour (approximately 24 test solution volume additions per day). Checks of the flow rate into each replicate chamber were made prior to test start and after test end.

Two 212-mL glass embryo cups (5.5-cm diameter) with screen mesh bottoms attached with silicone adhesive were suspended in each replicate. Twenty embryos were placed into each embryo cup (total of 40 embryos per replicate and 80 embryos per test concentration). Embryo cups were assigned to each replicate and embryos were assigned to embryo cups using random numbers. Embryo cups oscillated at approximately 4 rpm (2 to 7-cm water depth in embryo cup). Embryo cups were inspected daily and unfertilized eggs and damaged or fungus-infected embryos were removed. The criterion for embryo death was opaque appearance.

The surviving alevins and fingerlings were thinned to 15 per replicate using random numbers and released into the appropriate test chamber replicate on day 46 after swim-up had begun in the dilution water control. Fish that swim-up are those that occupy and are able to maintain their position in the top half of the water column and in which the yolk sac has mostly been resorbed. Test organisms thinned from the test chambers were humanely sacrificed with MS-222 and stored frozen for potential residue analysis at a later date. On day 46, feeding was initiated. The fingerlings were fed newly-hatched brine shrimp (*Artemia* sp., San Francisco Bay Brand, Newark, California) 3 times daily on weekdays and twice daily on weekends and holidays, except on days 46 and 47 when they were fed only once and twice, respectively. On day 55 through day 89, one of the daily feedings with brine shrimp was replaced by a feeding with Aqua Max[®] Starter Fingerling 300 5D03 (PMI[®] Nutrition International, LLC). The fingerlings were last fed on day 89 approximately 24 hours prior to test conclusion on the following day. Brine shrimp and Aqua Max[®] are analyzed periodically to assure that contaminants are not present at levels that would be expected to affect the scientific integrity of a study. Uneaten food and/or debris were removed as needed. The number of live fingerlings was determined daily by actual count.

The criteria for alevin and fingerling death were the absence of opercular movement and lack of reaction to gentle prodding. Organisms removed by thinning on day 46 and surviving organisms at test end were humanely sacrificed using MS-222. Measurements were made of length and blotted wet weight of surviving organisms at test end. In addition, all test organisms sacrificed at thinning on day 46 and three fish from each test chamber at test end were frozen for potential residue analysis at a later date.

Diluter operation was checked twice daily. Test solution concentrations were verified by chemical analysis prior to beginning the test, at test start, weekly, and at test end. Before thinning, water samples were taken from a point between the 2 embryo cups in each replicate test chamber (2 samples per concentration plus back-up samples). After thinning, water samples were taken at mid-depth from each test chamber replicate (2 samples per concentration plus back-up samples). Test solutions were maintained between 11.7 and 12.0°C (mean = 11.8°C). The diluter was wrapped in black plastic to keep the embryos and alevins in relative darkness until the completion of hatching. The black plastic was removed from day 40 onwards. A photoperiod of 16 hours light (310 - 634 Lux) and 8 hours darkness, which included 30 minutes of transitional light (approximately 26 - 198 Lux) between the light and dark intervals, was used throughout the remainder of the study.

Dissolved oxygen, pH, and temperature were measured in both replicates of the dilution water control, IPA control, and all test concentrations at the beginning of the test before embryos were added, weekly, and at test end. A continuously-recording thermometer was used to check temperature variations in the test system waterbath. Total alkalinity, EDTA hardness, and conductivity were measured in the "A" replicate of the dilution water control, IPA control, and the highest test substance concentration with surviving test organisms at the beginning of the test, weekly, and at test end. Test solutions were not aerated during the study.

F. Sample Preparation and Chemical Analysis

1. Sample Collection and Treatment

Analytical determination of H-25436 concentrations in test solution samples was performed with samples collected from each replicate test chamber prior to test initiation, at test initiation, and weekly after test initiation until test termination. A primary sample plus a back-up sample was collected from each replicate test chamber. All samples were diluted 1:1 with acetonitrile (5 mL of sample added to 5 mL acetonitrile) at the time of sampling. Aliquots of all test solutions were transferred to autosampler vials for analysis by LC/MS. Additionally, the following samples were diluted with 50/50% acetonitrile/HLWW before analysis: 2.5 mg/L (diluted 1:2), 5.0 mg/L (diluted 1:4). Backup samples were stored at room temperature.

2. Instrument and Conditions

HPLC Instrument: Model 2795, Waters
MS Instrument: ZQ, Micromass

LC Parameters:

Column: Luna 3u C18 (2), 20 mm x 2mm
Mobile Phase: A - 25 mM ammonium acetate in water
B - acetonitrile
C - 25 mM ammonium acetate in 20/80% water/acetonitrile

Gradient:

Time (min)	% A	%B	%C	Flow (mL/min)
0	40	0	60	0.3
5	0	0	100	0.3
6.5	0	0	100	0.3
6.51	0	100	0	0.3
8.5	0	100	0	0.3
8.51	40	0	60	0.3
12	40	0	60	0.3

Column Temperature: 30°C
Injection Volume: 35 µL
Column Switch: 1.25 and 7 min

MS Parameters:

Ionization mode: Electrospray, positive ions
Capillary voltage: 3.5 kV
Cone voltage: 30 V
Source Temperature: 120°C
Desolvation Temperature: 500°C

Data Acquisition Function: [REDACTED] SIR of 690.5, 734.5, 778.6, 822.6, 866.6 m/z;
0-7 min
[REDACTED] SIR of 790.5, 834.6, 878.6, 922.7, 966.7 m/z;
0-7 min
[REDACTED] SIR of 890.6, 934.6, 978.7, 1022.7,
1066.7 m/z; 0-7 min

3. Quantitation

H-25436 i [REDACTED]

The major components [REDACTED]

Five of the most intense individual [REDACTED]

were selected for analysis for [REDACTED]

[REDACTED] are ionized in positive ion mode electrospray predominately [REDACTED]

as the ammonium ion adducts when the mobile phase contains a significant concentration of ammonium acetate. Quantitation was based on the total signal obtained for the five selected

[REDACTED] Separate calibration curves were made for each group [REDACTED]

The total concentration of the test substance (H-25436) was assigned to each group of [REDACTED] that were monitored.

A stock solution of the reference standard, H-25436 [REDACTED] was made by dissolving approximately 10 mg of the standard in 10 mL of acetonitrile. Appropriate aliquots of the stock solution were diluted with 50/50% acetonitrile/HLWW to prepare calibration standard solutions with concentrations ranging from 0.103 to 1.04 mg/L. Duplicate injections of test and calibration standard solutions were made and peak areas were determined electronically.

The calibration standard curves were generated by regression analysis of the peak area data from chromatography of the calibration standard solutions. Data for test solutions were compared to the calibration standard curve to determine concentrations of H-25436. The limit of detection (LOD) and limit of quantitation (LOQ) were determined by calculating the average noise level in chromatograms of the water and IPA control solution and comparing them to the signal of a calibration standard of known concentration. Two chromatograms were examined for noise-related peaks near the retention time of the analyte. The LOD was calculated as 3 times the concentration equivalent of the mean noise level. The LOQ was calculated as 10 times the concentration equivalent of the mean noise level.

G. Statistical Analysis

The NOEC for each response was determined through the use of trend tests (Cochran-Armitage trend test or the Jonckheere trend test) wherever appropriate. These trend tests assume monotonicity in the concentration-response. Parametric, or if appropriate, non-parametric tests, were used to determine if there was significant departure from monotonicity. Other multiple comparison methods were used for non-monotone data.

Hatching, mortality and larval abnormality data were evaluated by the Cochran-Armitage test⁽⁶⁾ used in a step-down manner⁽⁷⁾ with equally-spaced concentration scores. If there was significant departure from monotonicity, then Fisher's exact test was used with a Bonferonni correction.⁽⁷⁾

Continuous or reproduction data (length, weight, first and last day of hatching, first day of swimup) were evaluated for normality using the Shapiro-Wilk test⁽⁸⁾ while homogeneity of variance was assessed by Levene's test.⁽⁹⁾ Data found to be both normal and homogenous were evaluated in the context of ANOVA.⁽⁷⁾ Monotonic concentration-response data were evaluated using the Jonckheere-Terpstra trend test.⁽¹⁰⁾ Non-monotonic concentration-response data were assessed using the Dunnett method⁽⁷⁾ if the data were normally distributed and homogeneous; using the Tamhane-Dunnett (or T3) method⁽⁷⁾ if the data were normally distributed but heterogeneous. If factors in addition to concentration were considered, such as the number of specimens in the test chamber at test start, then the Jonckheere test was not appropriate and multi-factor ANOVA was used for analysis. Non-normal data were analyzed by alternative

methods.⁽⁹⁾ If possible, a transformation was found to obtain normality. Otherwise, a Kruskal-Wallis test⁽¹⁰⁾ replaced the ANOVA, Dunn's test⁽⁷⁾ replaced Dunnett's, and the Jonckheere-Terpstra test was still applicable, except as noted. Outliers were determined by the Tukey outlier rule and, if present, their effect on the conclusions was determined.

If massive ties were present in a continuous response, exact⁽¹¹⁾ permutation methods were used for data analysis. An exact version of the Kruskal-Wallis test was used, followed by exact versions of Jonckheere-Terpstra or separate Mann-Whitney⁽¹⁰⁾ (or, equivalently, Wilcoxon) comparisons of each treatment group to the dilution water control, using a Bonferroni correction.

Wherever possible, determination of the EC₅₀ was done by probit analysis⁽⁶⁾ for all frequency responses, adjusting for dilution water control mortality. Where probit analysis failed, a moving-average angle or binary estimation procedure⁽¹²⁾ was used for analysis. Inverse regression⁽¹³⁾ was used to estimate the LC₅₀ for length and other continuous responses, if appropriate.

The No Observable Effect Concentration (NOEC) was defined as the highest measured concentration at or below which no statistically significant effect was observed. The Lowest Observed Effect Concentration (LOEC) was the lowest measured concentration at which a statistically significant effect occurred relative to the dilution water control. The maximum acceptable toxicant concentration (MATC) was defined as the geometric mean of the NOEC and LOEC.

RESULTS

A. Analytical Report

1. Chromatographic Results

[REDACTED] eluted as a well-resolved peak with a retention time of approximately 1.97 minutes. [REDACTED] eluted as a well-resolved peak with a retention time of approximately 3.58 minutes. [REDACTED] eluted as a well-resolved peak with a retention time of approximately 5.08 minutes. Figure 2 shows representative calibration curves obtained for [REDACTED]. Chromatograms of a typical calibration standard are shown in Figure 3. Figures 4 through 6 show chromatograms of a water blank control solution, IPA blank control solution, and test concentration solution, respectively.

The LOD and LOQ for [REDACTED] were determined to be 0.0002 mg/L and 0.00067 mg/L of H-25436, respectively. The LOD and LOQ for [REDACTED] were determined to be 0.00028 mg/L and 0.00093 mg/L of H-25436, respectively. The LOD and LOQ for [REDACTED] were determined to be 0.0004 mg/L and 0.0013 mg/L of H-25436, respectively.

2. Test Solution Results

The measured concentrations of H-25436 for each sampling day are shown in Table 2. Mean measured values of [REDACTED] ranged from 100 to 117% of the targeted nominal concentrations not adjusted for test substance purity [REDACTED]. Mean measured values of [REDACTED] ranged from 100 to 115% of the targeted nominal concentrations not adjusted for test substance purity [REDACTED]. Mean measured values of [REDACTED] ranged from 108 to 117% of the targeted nominal concentrations not adjusted for test substance purity [REDACTED]. All measured values of H-25436 were within 1.5 X of the lowest value for all replicate samples within a concentration with the exception of a single value on day 34. These data indicate that the H-25436 concentrations were maintained at acceptable levels throughout the definitive test.

Control solutions showed no detectable concentrations of H-25436 (Table 2).

B. In-Life Report

Selection of test concentrations for the 90-day trout early-life stage study were based on a previous study.⁽¹⁴⁾ Two initial definitive studies were terminated early due to poor performance of eggs or control test organisms. Nominal H-25436 concentrations selected for the final 90-day trout early life-stage study were 0.30, 0.63, 1.3, 2.5, and 5.0 mg/L. The corresponding mean, measured concentration of H-25436 from [REDACTED] analyses were 0.35, 0.71, 1.5, 2.8, and 5.1 mg/L. The corresponding mean, measured concentrations of H-25436 from [REDACTED] analyses were 0.34, 0.70, 1.5, 2.7, and 5.0 mg/L. The corresponding mean, measured concentrations of H-25436 from [REDACTED] analyses were 0.35, 0.71, 1.5, 2.8, and 5.4 mg/L. A dilution water and an IPA control were used in this study. The control solutions showed no detectable levels of H-25436.

Dilution water quality was acceptable based on OECD⁽³⁾ and ASTM⁽⁴⁾ dilution water criteria. Based on the most recent semi-annual dilution water analysis (Table 1), contaminant concentrations were below concentrations that could be expected to affect the integrity of a study. All chemical and physical parameters in the early life-stage study were within expected ranges (Tables 3 to 6). Alkalinity, hardness, and conductivity of the dilution water control, IPA control, and nominal 5.0 mg/L test concentration ranged from 47-52 mg/L as CaCO₃, 118-132 mg/L as CaCO₃; and 210-282 µmhos/cm, respectively. Temperature and pH of the test substance, dilution water, and IPA control solutions ranged from 11.7 to 12.0°C (mean 11.8°C) and 7.1 to 7.7, respectively. Dissolved oxygen concentrations ranged between 8.6 and 10.7 mg/L (80 and 100% of air saturation based on an air saturation value of 10.8 mg/L at 12°C) over the duration of the study. Analyses of brine shrimp and Aqua Max[®] indicated that total organochloride pesticides and PCBs were below concentrations that would be expected to affect the scientific integrity of the study.

A summary of hatching, swim-up, survival, and abnormalities from hatching to thinning is presented in Table 7. A summary of survival and abnormalities from thinning to test end, and mean length and wet weight (blotted dry) values at test end is presented in Table 8. Biological observations are presented in Tables 9 to 36. A photograph of a representative fertilized egg

used to start the study is presented in Figure 1. Loadings in the A and B replicates of the dilution water control at test end were 0.1066 and 0.0999 g fish per liter passing through each test chamber in 24 hours based on a daily turnover rate of 180 L or approximately 24, 7.5-L test solution volumes.

C. Statistical Analysis Report

The NOECs for number of eggs hatched, number of abnormal larvae at time of thinning, number of abnormal larvae at test end, survival of larvae to thinning, survival of larvae to test end, all exceeded 5.0 mg/L by the Cochran-Armitage trend test. No EC_{50} values could be computed since the maximum percent effect for any of these measures was < 50%.

First and last day of hatching and first day of swim-up showed massive ties, so that an exact analysis using StatXact was done. All three measures displayed a monotone trend, so the NOEC was determined by an exact Jonckheere-Terpstra test in each case. The NOEC for first day of hatching exceeded 5 mg/L while the NOECs for the last day of hatching and the first day of swim-up were 1.3 mg/L.

The Jonckheere-Terpstra test determined the NOECs for both length and weight of surviving trout at test end were greater than 5 mg/L.

DISCUSSION

The mean measured concentrations of H-25436 were maintained at acceptable concentrations throughout the definitive study. The dilution water control and IPA control contained no detectable concentrations of H-25436. The most sensitive endpoints during the study were the last day of hatching and the first day of swim-up (NOEC = 1.3 mg/L) based on the results of the Jonckheere-Terpstra trend test.

CONCLUSION

The NOEC (no observable effect concentration) for H-25436 in a 90-day early life-stage toxicity study using rainbow trout, *Oncorhynchus mykiss*, was 1.3 mg/L based on nominal H-25436 concentrations and the last day of hatching and the first day of swim-up. The LOEC (lowest observed effect concentration) and MATC (maximum acceptable toxicant concentration), for the same endpoint were 2.5 and 1.8 mg/L, respectively.

RECORDS AND SAMPLE STORAGE

Laboratory-specific or site-specific raw data, such as personnel files and equipment records will be retained by the facility where the work was done.

Specimens (if applicable), raw data, and the final report will be retained at Haskell Laboratory, Newark, Delaware, or at Iron Mountain Records Management, Wilmington, Delaware.

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TABLES

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TABLE 1

CHEMICAL CHARACTERISTICS OF HASKELL LABORATORY WELL^a

Parameter	MDL ^b	Analytical Value	Parameter	MDL ^b	Analytical Value
BOD, mg/L	2.6	ND ^c	Lead, mg/L	0.0093	ND
COD, mg/L	1.7	ND	Magnesium, mg/L	0.0183	3.83
DOC, mg/L	0.6	0.82 J ^d	Manganese, mg/L	0.00051	0.103
TOC, mg/L	0.5	ND	MBAS/LAS, mg/L	0.035	ND
Total Kjeldahl N, mg/L	0.3	ND	Mercury, mg/L	0.00016	ND
Ammonia N, mg/L	0.03	ND	Nickel, mg/L	0.0038	ND
Turbidity, NTU	0.09	0.14 J	Nitrite, mg/L	0.015	ND
Phenolics, mg/L	0.012	ND	Nitrate, mg/L	0.04	ND
Color, apparent Co/Pt ^e	5.0	ND	Ortho-phosphate, mg/L	0.01	0.035
Solids			Potassium, mg/L	0.0429	3.55
total suspended, mg/L	1.5	ND	Selenium, mg/L	0.0011	ND
Aluminum, mg/L	0.0413	ND	Silver, mg/L	0.0001	ND
Antimony, mg/L	0.0085	ND	Sodium, mg/L	0.463	8.08
Arsenic, mg/L	0.0014	ND	Sulfate, mg/L	0.3	6.9
Beryllium, mg/L	0.00034	ND	Sulfide, mg/L	0.022	ND
Boron, mg/L	0.0047	0.0174 J	Zinc, mg/L	0.0041	ND
Bromide, mg/L	0.4	0.98	Ca/Mg	NA ^f	12.17
Cadmium, mg/L	0.00006	ND	Na/K	NA	2.28
Calcium, mg/L	0.0494	46.6	Volatile priority		
Chloride, mg/L	6.0	70.6	pollutants, µg/L	0.5-40	ND
Chlorine, residual, mg/L	0.04	ND	Acid extractable		
Chromium, mg/L	0.00025	0.00083 J	priority pollutants, µg/L	1.0-19	ND
Cobalt, mg/L	0.0016	ND	Base/neutral		
Copper, mg/L	0.00055	0.0061	priority pollutants, µg/L	1.0-19	ND
Cyanide, mg/L	0.005	ND	Pesticides/PCBs, µg/L	0.0019-0.38	ND-0.0030 J
Iron, mg/L	0.0453	ND	Organophosphate		
Fluoride, mg/L	0.08	0.28	pesticides, µg/L	0.38	ND

^a Sample analyses performed at Lancaster Laboratories, Lancaster, Pennsylvania, date of sample collection 17 November 2003 unless indicated otherwise,
^b MDL = method detection limit, ^c ND indicates not detected at the MDL, ^d A "J" follows analytical values which were greater than the MDL but less than the
limit of quantitation, ^e Units based on cobalt/platinum reference, ^f NA = not applicable.

TABLE 2
MEASURED CONCENTRATIONS OF H-25436 IN TEST SOLUTIONS

Nominal H-25436 Concentration (mg/L) ^a	Measured [REDACTED] Concentration (mg/L)						
	Day -1 ^b	Day 0	Day 6	Day 13	Day 20	Day 27	Day 34
Water Control A	ND ^c	ND	ND	ND	ND	ND	ND
Water Control B	ND	ND	ND	ND	ND	ND	ND
IPA Control A	ND	ND	ND	ND	ND	ND	ND
IPA Control B	ND	ND	ND	ND	ND	ND	ND
0.30 A	0.38	0.31	0.28	0.33	0.34	0.33	0.33
0.30 B	0.38	0.31	0.35	0.34	0.35	0.33	0.33
0.63 A	0.71	0.61	0.70	0.70	0.72	0.70	0.69
0.63 B	0.75	0.64	0.72	0.73	0.72	0.70	0.47
1.3 A	1.6	1.3	1.4	1.5	1.5	1.4	1.5
1.3 B	1.5	1.3	1.4	1.5	1.4	1.4	1.4
2.5 A	2.7	2.3	2.7	2.6	2.6	2.5	2.5
2.5 B	2.9	2.4	2.7	2.7	2.7	2.5	2.5
5.0 A	5.3	4.4	4.8	5.1	4.8	4.8	4.6
5.0 B	5.2	4.3	4.7	5.1	4.8	4.8	4.7

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TABLE 2 (Continued)

MEASURED CONCENTRATIONS OF H-25436 IN TEST SOLUTIONS

Nominal H-25436 Concentration (mg/L) ^a	Measured  Concentration (mg/L)						
	Day 41	Day 48	Day 55	Day 62	Day 69	Day 76	Day 83
Water Control A	ND	ND	ND	ND	ND	ND	ND
Water Control B	ND	ND	ND	ND	ND	ND	ND
IPA Control A	ND	ND	ND	ND	ND	ND	ND
IPA Control B	ND	ND	ND	ND	ND	ND	ND
0.30 A	0.34	0.37	0.38	0.37	0.36	0.37	0.38
0.30 B	0.34	0.35	0.33	0.34	0.32	0.36	0.35
0.63 A	0.71	0.73	0.72	0.70	0.71	0.75	0.76
0.63 B	0.69	0.74	0.74	0.73	0.74	0.77	0.77
1.3 A	1.5	1.5	1.5	1.6	1.6	1.6	1.7
1.3 B	1.4	1.4	1.5	1.6	1.6	1.6	1.6
2.5 A	2.8	2.7	2.9	3.0	3.0	3.2	3.2
2.5 B	2.6	2.6	2.7	2.9	2.9	3.1	3.0
5.0 A	4.8	4.9	5.6	5.1	5.8	6.1	5.9
5.0 B	4.8	4.8	5.1	5.2	5.4	5.5	5.7

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TABLE 2 (Continued)

MEASURED CONCENTRATIONS OF H-25436 IN TEST SOLUTIONS

Nominal H-25436 Concentration (mg/L) ^a	Measured Concentration (mg/L) Day 90	Mean, Measured Concentration (mg/L) ^d	Mean Percent Recovery ^e
Water Control A	ND	---	---
Water Control B	ND	---	---
IPA Control A	ND	---	---
IPA Control B	ND	---	---
0.30 A	0.34	0.35	117
0.30 B	0.33	0.34	113
0.63 A	0.73	0.71	113
0.63 B	0.73	0.71	113
1.3 A	1.5	1.5	115
1.3 B	1.6	1.5	115
2.5 A	2.8	2.8	112
2.5 B	2.7	2.7	108
5.0 A	5.4	5.2	104
5.0 B	5.1	5.0	100

a Nominal H-25436 concentration based on [REDACTED] purity by analysis.

b Measured values prior to study start were used to verify system function but were not used to calculate mean measured test concentrations of H-25436.

c ND denotes not detected. The limit of detection for [REDACTED] was 0.0002 mg/L of H-25436.

d Mean, measured H-25436 concentration was calculated as the average of values obtained from day 0 to day 90.

e Based on nominal H-25436 concentration.

Company Sanitized. Does not contain TSCA CBI

TABLE 2 (Continued)

MEASURED CONCENTRATIONS OF H-25436 IN TEST SOLUTIONS

Nominal H-25436 Concentration (mg/L) ^a	[REDACTED] Concentration (mg/L)						
	Day -1 ^b	Day 0	Day 6	Day 13	Day 20	Day 27	Day 34
Water Control A	ND ^c	ND	ND	ND	ND	ND	ND
Water Control B	ND	ND	ND	ND	ND	ND	ND
IPA Control A	ND	ND	ND	ND	ND	ND	ND
IPA Control B	ND	ND	ND	ND	ND	ND	ND
0.30 A	0.37	0.30	0.28	0.31	0.33	0.32	0.32
0.30 B	0.37	0.31	0.34	0.33	0.33	0.32	0.32
0.63 A	0.70	0.58	0.67	0.67	0.70	0.67	0.68
0.63 B	0.73	0.61	0.70	0.69	0.69	0.66	0.46
1.3 A	1.5	1.3	1.4	1.4	1.4	1.3	1.4
1.3 B	1.4	1.2	1.3	1.4	1.3	1.3	1.3
2.5 A	2.6	2.2	2.6	2.6	2.6	2.5	2.5
2.5 B	2.6	2.1	2.4	2.4	2.3	2.2	2.2
5.0 A	5.2	4.3	4.8	5.0	4.7	4.7	4.6
5.0 B	5.3	4.4	4.8	5.2	4.9	4.8	4.8

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TABLE 2 (Continued)

MEASURED CONCENTRATIONS OF H-25436 IN TEST SOLUTIONS

Nominal H-25436 Concentration (mg/L) ^a	[REDACTED] Concentration (mg/L)						
	Day 41	Day 48	Day 55	Day 62	Day 69	Day 76	Day 83
Water Control A	ND	ND	ND	ND	ND	ND	ND
Water Control B	ND	ND	ND	ND	ND	ND	ND
IPA Control A	ND	ND	ND	ND	ND	ND	ND
IPA Control B	ND	ND	ND	ND	ND	ND	ND
0.30 A	0.33	0.34	0.37	0.40	0.39	0.36	0.38
0.30 B	0.33	0.33	0.40	0.38	0.33	0.34	0.34
0.63 A	0.70	0.72	0.72	0.72	0.71	0.76	0.76
0.63 B	0.65	0.67	0.83	0.70	0.71	0.77	0.80
1.3 A	1.4	1.4	1.4	1.6	1.5	1.7	1.7
1.3 B	1.3	1.4	1.5	1.6	1.5	1.7	1.6
2.5 A	2.6	2.5	2.7	2.9	2.9	3.2	3.2
2.5 B	2.5	2.6	2.5	2.9	2.8	3.1	3.1
5.0 A	4.8	4.8	5.2	4.9	5.2	5.9	5.7
5.0 B	5.0	4.9	5.1	5.2	5.0	5.5	5.6

Company Sanitized. Does not contain TSCA CBI

TABLE 2 (Continued)

MEASURED CONCENTRATIONS OF H-25436 IN TEST SOLUTIONS

Nominal H-25436 Concentration (mg/L) ^a	Measured Concentration (mg/L) Day 90	Mean, Measured Concentration (mg/L) ^d	Mean Percent Recovery ^e
Water Control A	ND	---	---
Water Control B	ND	---	---
IPA Control A	ND	---	---
IPA Control B	ND	---	---
0.30 A	0.32	0.34	113
0.30 B	0.31	0.34	113
0.63 A	0.71	0.70	111
0.63 B	0.72	0.69	110
1.3 A	1.4	1.5	115
1.3 B	1.5	1.4	108
2.5 A	2.5	2.7	108
2.5 B	2.6	2.6	104
5.0 A	5.2	5.0	100
5.0 B	5.0	5.0	100

- a Nominal H-25436 concentration based on [REDACTED] purity by analysis.
- b Measured values prior to study start were used to verify system function but were not used to calculate mean measured test concentrations of H-25436.
- c ND denotes not detected. The limit of detection for [REDACTED] was 0.00028 mg/L of H-25436.
- d Mean, measured H-25436 concentration was calculated as the average of values obtained from day 0 to day 90.
- e Based on nominal H-25436 concentration.

TABLE 2 (Continued)

MEASURED CONCENTRATIONS OF H-25436 IN TEST SOLUTIONS

Nominal H-25436 Concentration (mg/L) ^a	Measured XXXXXXXXXX Concentration (mg/L)						
	Day -1 ^b	Day 0	Day 6	Day 13	Day 20	Day 27	Day 34
Water Control A	ND ^c	ND	ND	ND	ND	ND	ND
Water Control B	ND	ND	ND	ND	ND	ND	ND
IPA Control A	ND	ND	ND	ND	ND	ND	ND
IPA Control B	ND	ND	ND	ND	ND	ND	ND
0.30 A	0.39	0.30	0.30	0.32	0.33	0.32	0.32
0.30 B	0.38	0.31	0.35	0.33	0.34	0.32	0.32
0.63 A	0.75	0.60	0.70	0.69	0.72	0.69	0.70
0.63 B	0.76	0.61	0.71	0.72	0.71	0.69	0.55
1.3 A	1.6	1.3	1.5	1.5	1.5	1.4	1.5
1.3 B	1.5	1.3	1.4	1.5	1.5	1.4	1.4
2.5 A	2.8	2.4	2.8	2.8	2.8	2.7	2.7
2.5 B	2.9	2.4	2.7	2.7	2.7	2.6	2.6
5.0 A	5.6	4.7	5.2	5.5	5.2	5.2	5.1
5.0 B	5.7	4.7	5.2	5.5	5.3	5.3	5.1

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TABLE 2 (Continued)

MEASURED CONCENTRATIONS OF H-25436 IN TEST SOLUTIONS

Nominal H-25436 Concentration (mg/L) ^a	Measured [REDACTED] Concentration (mg/L)						
	Day 41	Day 48	Day 55	Day 62	Day 69	Day 76	Day 83
Water Control A	ND	ND	ND	ND	ND	ND	ND
Water Control B	ND	ND	ND	ND	ND	ND	ND
IPA Control A	ND	ND	ND	ND	ND	ND	ND
IPA Control B	ND	ND	ND	ND	ND	ND	ND
0.30 A	0.33	0.34	0.36	0.45	0.49	0.36	0.36
0.30 B	0.33	0.33	0.42	0.43	0.36	0.35	0.35
0.63 A	0.72	0.72	0.72	0.78	0.76	0.84	0.76
0.63 B	0.70	0.71	0.79	0.70	0.68	0.76	0.76
1.3 A	1.5	1.4	1.4	1.6	1.4	1.8	1.6
1.3 B	1.5	1.4	1.5	1.6	1.5	1.7	1.6
2.5 A	2.8	2.7	2.8	3.0	2.8	3.2	3.2
2.5 B	2.8	2.7	2.7	2.9	2.8	3.1	3.1
5.0 A	5.3	5.2	5.5	5.3	5.2	6.1	5.9
5.0 B	5.4	5.2	5.4	5.5	5.1	5.8	5.9

Company Sanitized. Does not contain TSCA CBI

TABLE 2 (Continued)

MEASURED CONCENTRATIONS OF H-25436 IN TEST SOLUTIONS

Nominal H-25436 Concentration (mg/L) ^a	Measured Concentration (mg/L) Day 90	Mean, Measured Concentration (mg/L) ^d	Mean Percent Recovery ^e
Water Control A	ND	---	---
Water Control B	ND	---	---
IPA Control A	ND	---	---
IPA Control B	ND	---	---
0.30 A	0.35	0.35	117
0.30 B	0.32	0.35	117
0.63 A	0.70	0.72	114
0.63 B	0.69	0.70	111
1.3 A	1.5	1.5	115
1.3 B	1.5	1.5	115
2.5 A	2.8	2.8	112
2.5 B	2.8	2.8	112
5.0 A	5.5	5.4	108
5.0 B	5.5	5.4	108

- a Nominal H-25436 concentration based on [REDACTED] purity by analysis.
- b Measured values prior to study start were used to verify system function but were not used to calculate mean measured test concentrations of H-25436.
- c ND denotes not detected. The limit of detection for [REDACTED] was 0.0004 mg/L of H-25436.
- d Mean, measured H-25436 concentration was calculated as the average of values obtained from day 0 to day 90.
- e Based on nominal H-25436 concentration.

Company Sanitized. Does not contain TSCA CBI

TABLE 3

WATER CHEMISTRY OF THE DILUTION WATER CONTROL, IPA CONTROL, AND
HIGHEST TEST CONCENTRATION WITH SURVIVING ORGANISMS^a

Day	Replicate	Total Alkalinity (mg/L as CaCO ₃)	EDTA Hardness (mg/L as CaCO ₃)	Conductivity (μmhos/cm)
Dilution Water Control				
0	A	50	128	270
6	A	50	131	270
13	A	49	130	250
20	A	49	128	260
27	A	47	123	240
34	A	50	124	225
41	A	49	126	220
48	A	49	126	240
55	A	49	127	235
62	A	47	131	230
69	A	47	123	220
76	A	49	126	210
83	A	50	126	220
90	A	47	118	220
IPA Control				
0	A	51	128	280
6	A	50	132	270
13	A	50	129	250
20	A	50	131	265
27	A	50	124	245
34	A	51	124	225
41	A	50	128	225
48	A	50	126	240
55	A	49	126	235
62	A	48	130	230
69	A	48	124	220
76	A	49	127	210
83	A	51	126	225
90	A	51	121	230

Company Sanitized. Does not contain TSCA CBI

TABLE 3 (Continued)

WATER CHEMISTRY OF THE DILUTION WATER CONTROL, IPA CONTROL, AND
HIGHEST TEST CONCENTRATION WITH SURVIVING ORGANISMS^a

Day	Replicate	Total Alkalinity (mg/L as CaCO ₃)	EDTA Hardness (mg/L as CaCO ₃)	Conductivity (µmhos/cm)
Highest Test Concentration with Surviving Organisms – 5.0 mg/L				
0	A	51	129	282
6	A	47	132	270
13	A	50	132	252
20	A	50	130	270
27	A	48	123	250
34	A	50	123	230
41	A	49	126	225
48	A	51	127	250
55	A	52	130	235
62	A	48	131	230
69	A	47	124	220
76	A	49	127	215
83	A	51	127	222
90	A	49	120	230

a Based on nominal H-25436 test concentration.

TABLE 4

TEMPERATURE (°C) OF TEST SOLUTIONS FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Dilution		Temperature (°C)					Water Bath
		Water Control	IPA Control	Nominal Concentrations (mg/L)					
				0.30	0.63	1.3	2.5	5.0	
0	A	11.9	11.9	11.9	11.9	11.9	11.9	11.9	12.2
0	B	11.9	11.9	11.9	11.9	11.9	11.9	11.9	
6	A	11.7	11.8	11.9	11.7	11.7	11.7	11.9	12.2
6	B	11.7	11.7	11.8	11.7	11.7	11.8	11.7	
13	A	11.8	11.8	11.9	11.8	11.7	11.7	11.9	12.2
13	B	11.8	11.8	11.8	11.8	11.7	11.9	11.8	
20	A	11.7	11.8	11.9	11.8	11.7	11.7	11.9	12.3
20	B	11.7	11.7	11.8	11.8	11.7	12.0	11.8	
27	A	11.9	11.8	11.9	11.8	11.8	11.7	11.9	12.2
27	B	11.8	11.8	11.9	11.8	11.8	11.9	11.8	
34	A	11.9	11.9	12.0	11.8	11.9	11.8	12.0	12.2
34	B	11.9	11.9	11.9	12.0	11.9	11.9	11.9	
41	A	11.9	11.9	11.9	11.9	11.9	11.8	11.8	12.2
41	B	11.8	11.8	11.9	11.8	11.8	11.8	11.8	
48	A	11.9	11.8	11.9	11.8	11.8	11.8	11.9	12.2
48	B	11.8	11.8	11.9	11.9	11.7	11.7	11.9	
55	A	11.9	11.8	11.9	11.8	11.8	11.8	11.8	12.3
55	B	11.8	11.8	11.8	11.8	11.8	11.8	11.8	
62	A	11.9	11.9	11.9	11.9	11.8	11.9	11.9	12.2
62	B	11.9	11.9	11.9	11.9	11.8	11.7	11.8	
69	A	12.0	11.9	11.9	11.9	11.7	11.9	11.9	12.2
69	B	11.9	11.9	11.9	11.9	11.8	11.8	11.8	
76	A	11.9	11.8	11.9	11.8	11.7	11.9	11.9	12.1
76	B	11.9	11.8	11.9	11.9	11.8	11.8	11.9	
83	A	11.9	11.8	11.9	11.8	11.8	11.9	11.8	12.2
83	B	11.9	11.9	11.9	11.8	11.7	11.8	11.8	
90	A	12.0	11.9	12.0	11.8	11.9	11.9	11.9	12.2
90	B	12.0	11.9	12.0	11.9	11.8	11.8	11.9	
Temperature (°C)									
Mean for all concentrations, including controls									11.8
Std. Dev. of for all concentrations, including controls									0.1
Minimum for all concentrations, including controls									11.7
Maximum for all concentrations, including controls									12.0

TABLE 5

pH OF TEST SOLUTIONS FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*,
EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Dilution		pH				
		Water	IPA	Nominal Concentrations (mg/L)				
		Control	Control	0.30	0.63	1.3	2.5	5.0
0	A	7.4	7.4	7.4	7.4	7.3	7.3	7.3
0	B	7.4	7.4	7.3	7.3	7.3	7.3	7.3
6	A	7.5	7.5	7.5	7.5	7.4	7.4	7.4
6	B	7.5	7.5	7.4	7.4	7.4	7.4	7.4
13	A	7.7	7.7	7.7	7.7	7.7	7.6	7.6
13	B	7.7	7.7	7.6	7.7	7.6	7.7	7.6
20	A	7.5	7.4	7.5	7.4	7.5	7.4	7.4
20	B	7.5	7.4	7.4	7.4	7.4	7.4	7.4
27	A	7.4	7.4	7.4	7.3	7.3	7.3	7.3
27	B	7.4	7.3	7.3	7.3	7.3	7.3	7.3
34	A	7.4	7.4	7.3	7.3	7.3	7.3	7.3
34	B	7.4	7.3	7.3	7.4	7.3	7.3	7.3
41	A	7.4	7.4	7.4	7.4	7.4	7.4	7.3
41	B	7.4	7.4	7.4	7.4	7.4	7.3	7.3
48	A	7.4	7.4	7.3	7.3	7.3	7.3	7.3
48	B	7.4	7.3	7.3	7.3	7.3	7.3	7.3
55	A	7.3	7.3	7.3	7.3	7.3	7.2	7.2
55	B	7.3	7.3	7.3	7.3	7.3	7.2	7.2
62	A	7.3	7.3	7.3	7.3	7.3	7.3	7.2
62	B	7.3	7.3	7.3	7.3	7.3	7.2	7.2
69	A	7.3	7.2	7.3	7.2	7.2	7.2	7.2
69	B	7.3	7.2	7.2	7.2	7.2	7.2	7.2
76	A	7.3	7.3	7.2	7.2	7.2	7.2	7.1
76	B	7.3	7.2	7.2	7.2	7.2	7.2	7.1
83	A	7.3	7.3	7.3	7.2	7.2	7.2	7.2
83	B	7.3	7.3	7.3	7.2	7.2	7.2	7.2
90	A	7.3	7.3	7.3	7.3	7.3	7.3	7.2
90	B	7.3	7.3	7.3	7.3	7.3	7.2	7.2
Minimum for all concentrations, including controls								7.1
Maximum for all concentrations, including controls								7.7

TABLE 6

DISSOLVED OXYGEN CONCENTRATION (mg/L) OF TEST SOLUTIONS FOR THE
90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Dilution		Dissolved Oxygen Concentration (mg/L) ^a				
		Water	IPA	Nominal Concentrations (mg/L)				
		Control	Control	0.30	0.63	1.3	2.5	5.0
0	A	10.3	10.4	10.3	10.3	10.1	10.0	10.0
0	B	10.3	10.4	10.1	10.3	10.1	10.2	9.9
6	A	10.4	10.6	10.4	10.4	10.1	10.0	10.2
6	B	10.5	10.5	10.2	10.4	10.3	10.3	10.0
13	A	10.7	10.6	10.6	10.5	10.4	10.3	10.5
13	B	10.6	10.6	10.4	10.6	10.4	10.5	10.3
20	A	10.6	10.5	10.5	10.3	10.2	10.1	10.1
20	B	10.5	10.5	10.2	10.4	10.2	10.3	10.0
27	A	10.3	10.3	10.2	10.2	10.1	9.9	10.0
27	B	10.3	10.3	10.0	10.2	10.1	10.2	9.8
34	A	10.1	10.2	10.0	9.9	9.9	10.0	9.8
34	B	10.2	10.2	10.0	10.0	10.0	10.0	9.8
41	A	10.4	10.2	10.1	10.1	10.0	10.1	9.9
41	B	10.4	10.2	10.1	10.2	10.1	10.1	9.9
48	A	10.4	10.3	10.2	10.1	10.1	10.1	10.0
48	B	10.4	10.2	10.1	10.1	10.1	10.0	9.9
55	A	10.2	10.1	10.0	10.0	10.0	10.0	9.9
55	B	10.2	10.1	10.0	9.9	10.1	10.0	9.8
62	A	10.1	10.0	9.9	10.0	9.9	9.9	9.7
62	B	10.1	10.1	9.9	9.9	9.9	9.9	9.7
69	A	10.1	10.1	9.9	10.0	9.9	9.8	9.6
69	B	10.2	10.1	9.9	10.0	10.0	9.9	9.7
76	A	9.0	9.0	8.8	8.9	8.8	8.8	8.6
76	B	9.1	9.0	8.8	8.8	8.9	8.8	8.6
83	A	9.5	9.4	9.1	9.3	9.3	9.0	9.0
83	B	9.6	9.5	9.3	9.2	9.4	9.3	9.1
90	A	9.8	9.3	8.8	9.3	9.4	8.8	8.8
90	B	9.7	9.6	9.2	8.9	9.4	9.1	9.0
Dissolved Oxygen Concentration (mg/L)								
Mean for all concentrations, including controls								9.9
Std. Dev. for all concentrations, including controls								0.5
Minimum for all concentrations, including controls								8.6
Maximum for all concentrations, including controls								10.7

^a The theoretical dissolved oxygen concentration at saturation at 12°C = 10.8 mg/L.

TABLE 7

SUMMARY OF HATCHING, SURVIVAL, ABNORMALITIES, AND SWIM-UP FROM HATCHING TO THINNING
FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Nominal H-25436 Concentration (mg/L)	Replicate	Hatching Day		Percent Hatch			Survival			Hatching to Thinning			First Day of Swim-Up
		First	Last ^a	Number Hatching	Total	Percent	Number Alive	Number Hatching	Percent	Number Affected	Number Alive	Percent	
Dilution Water Control	1A	27	30	17	20	85%	15	17	88%	2	15	13%	40
	2A	27	31	16	20	80%	15	16	94%	1	15	7%	40
	1B	26	30	18	20	90%	17	18	94%	1	17	6%	40
	2B	28	30	15	20	75%	15	15	100%	0	15	0%	40
	Mean ^c	27	30	17	20	83%	16	17	94%	1	16	6%	40
IPA Control	1A	27	30	18	20	90%	17	18	94%	1	17	6%	41
	2A	27	29	17	20	85%	16	17	94%	0	16	0%	40
	1B	28	31	17	20	85%	17	17	100%	1	17	6%	40
	2B	26	31	17	20	85%	15	17	88%	0	15	0%	40
	Mean ^c	27	30	17	20	86%	16	17	94%	1	16	6%	40
0.30	1A	27	30	17	20	85%	15	17	88%	0	15	0%	40
	2A	27	30	17	20	85%	16	17	94%	1	16	6%	40
	1B	27	32	16	20	80%	16	16	100%	1	16	6%	40
	2B	27	31	18	20	90%	18	18	100%	4	18	22%	40
	Mean ^c	27	31	17	20	85%	16	17	94%	2	16	13%	40

TABLE 7 (Continued)

SUMMARY OF HATCHING, SURVIVAL, ABNORMALITIES, AND SWIM-UP FROM HATCHING TO THINNING FOR THE
90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Nominal H-25436 Concentration (mg/L)	Replicate	Hatching Day		Percent Hatch			Survival			Hatching to Thinning			First Day of Swim-Up
		First	Last ^a	Number Hatching	Total	Percent	Number Alive	Number Hatching	Percent	Number Affected	Number Alive	Percent	
0.63	1A	26	31	16	20	80%	15	16	94%	2	15	13%	40
	2A	27	30	16	20	80%	16	16	100%	1	16	6%	40
	1B	27	30	16	20	80%	16	16	100%	0	16	0%	40
	2B	26	31	14	20	70%	13	14	93%	1	13	8%	40
	Mean ^c	27	31	16	20	80%	15	16	94%	1	15	7%	40
1.3	1A	27	31	16	20	80%	15	16	94%	1	15	7%	40
	2A	25	32	17	20	85%	17	17	100%	1	17	6%	40
	1B	26	30	17	20	85%	17	17	100%	0	17	0%	40
	2B	27	31	18	20	90%	16	18	89%	0	16	0%	41
	Mean ^c	26	31	17	20	85%	16	17	94%	1	16	7%	40
2.5	1A	27	33	13	20	65%	13	13	100%	0	13	0%	41
	2A	28	32	12	20	60%	12	12	100%	1	12	8%	42
	1B	27	30	16	20	80%	15	16	94%	0	15	0%	40
	2B	27	32	17	20	85%	16	17	94%	0	16	0%	41
	Mean ^c	27	32	15	20	75%	14	15	93%	0	14	0%	41

TABLE 7 (Continued)

SUMMARY OF HATCHING, SURVIVAL, ABNORMALITIES, AND SWIM-UP FROM HATCHING TO THINNING FOR THE
90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Nominal H-25436 Concentration (mg/L)	Replicate	Hatching Day		Percent Hatch		Survival		Hatching to Thinning		Abnormalities ^b Number Affected	Number Alive	Percent	First Day of Swim-Up
		First	Last ^a	Number Hatching	Total	Number Hatching	Percent	Number Hatching	Percent				
5.0	1A	26	30	17	20	17	85%	17	100%	0	17	0%	40
	2A	25	31	17	20	17	85%	17	94%	2	16	13%	41
	1B	28	32	18	20	18	90%	18	100%	2	18	11%	42
	2B	28	32	16	20	16	80%	16	100%	0	16	0%	40
	Mean ^c	27	31	17	20	17	85%	17	100%	1	17	6%	41

^a Last day of hatching is defined as the last day that remaining live eggs (or live embryos) hatch to yield live alevins.

^b Based on abnormalities still present at the time of thinning.

^c Calculated as mean of replicate values, percent is based on mean values.

TABLE 8

SUMMARY OF SURVIVAL, ABNORMALITIES, AND GROWTH FROM THINNING TO TEST END FOR THE
90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Nominal H-25436 Concentration (mg/L)	Replicate	Survival			Thinning to Test End		Growth of Surviving Fingerlings	
		Number Alive	Total	Percent	Number Affected	Number Alive	Mean Standard Length ± Std. Dev. (cm)	Mean Wet Weight ± Std. Dev. (g)
Dilution Water Control	A	15	15	100%	0	15	4.6 ± 0.32	1.2788 ± 0.2537
	B	15	15	100%	0	15	4.5 ± 0.28	1.1987 ± 0.2801
	Mean ^b	15	15	100%	0	15	4.6 ± 0.30	1.2388 ± 0.2672
IPA Control	A	15	15	100%	0	15	4.4 ± 0.34	1.2007 ± 0.3033
	B	15	15	100%	0	15	4.3 ± 0.29	1.0568 ± 0.2360
	Mean ^b	15	15	100%	0	15	4.4 ± 0.32	1.1287 ± 0.2717
0.30	A	15	15	100%	0	15	4.5 ± 0.48	1.2701 ± 0.4096
	B	14	15	93%	0	14	4.4 ± 0.44	1.2061 ± 0.4075
	Mean ^b	15	15	97%	0	15	4.5 ± 0.46	1.2392 ± 0.4086
0.63	A	13	15	87%	0	13	4.4 ± 0.37	1.2668 ± 0.3575
	B	15	15	100%	0	15	4.4 ± 0.50	1.1690 ± 0.3704
	Mean ^b	14	15	93%	0	14	4.4 ± 0.44	1.2144 ± 0.3645
1.3	A	15	15	100%	1	15	4.5 ± 0.54	1.1730 ± 0.4043
	B	15	15	100%	0	15	4.3 ± 0.47	1.1151 ± 0.3462
	Mean ^b	15	15	100%	1	15	4.4 ± 0.51	1.1441 ± 0.3764

TABLE 8 (Continued)

SUMMARY OF SURVIVAL, ABNORMALITIES, AND GROWTH FROM THINNING TO TEST END FOR THE
90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Nominal H-25436 Concentration (mg/L)	Replicate	Survival		Thinning to Test End		Abnormalities ^a		Growth of Surviving Fingerlings	
		Number Alive	Total	Percent	Number Affected	Number Alive	Percent	Mean Standard Length ± Std. Dev. (cm)	Mean Wet Weight ± Std. Dev. (g)
2.5	A	13	15	87%	0	13	0%	4.4 ± 0.43	1.1420 ± 0.3819
	B	15	15	100%	0	15	0%	4.2 ± 0.58	1.0031 ± 0.4461
	Mean ^b	14	15	93%	0	14	0%	4.3 ± 0.52	1.0726 ± 0.4177
5.0	A	14	15	93%	0	14	0%	4.5 ± 0.22	1.2207 ± 0.1918
	B	15	15	100%	0	15	0%	4.2 ± 0.47	1.0324 ± 0.3628
	Mean ^b	15	15	100%	0	15	0%	4.3 ± 0.37	1.1233 ± 0.2932

^a Based on abnormalities still present at test end.^b Calculated as mean of replicate values, percent is based on mean values.

TABLE 9 .

DILUTION WATER CONTROL: EMBRYO SURVIVAL AND HATCHING DATA FOR
THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY
TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
0	1A	0	-	0	20	-	-
0	2A	0	-	0	20	-	-
0	1B	0	-	0	20	-	-
0	2B	0	-	0	20	-	-
1	1A	0	-	0	20	-	-
1	2A	0	-	0	20	-	-
1	1B	0	-	0	20	-	-
1	2B	0	-	0	20	-	-
2	1A	0	-	0	20	-	-
2	2A	0	-	0	20	-	-
2	1B	0	-	0	20	-	-
2	2B	0	-	0	20	-	-
3	1A	0	-	0	20	-	-
3	2A	0	-	0	20	-	-
3	1B	0	-	0	20	-	-
3	2B	0	-	0	20	-	-
4	1A	0	-	0	20	-	-
4	2A	0	-	0	20	-	-
4	1B	0	-	0	20	-	-
4	2B	0	-	0	20	-	-
5	1A	0	-	0	20	-	-
5	2A	0	-	0	20	-	-
5	1B	0	-	0	20	-	-
5	2B	0	-	0	20	-	-
6	1A	0	-	0	20	-	-
6	2A	0	-	0	20	-	-
6	1B	0	-	0	20	-	-
6	2B	0	-	0	20	-	-
7	1A	0	-	0	20	-	-
7	2A	0	-	0	20	-	-
7	1B	0	-	0	20	-	-
7	2B	0	-	0	20	-	-

TABLE 9 (Continued)

DILUTION WATER CONTROL: EMBRYO SURVIVAL AND HATCHING DATA FOR
THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY
TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
8	1A	0	-	0	20	-	-
8	2A	0	-	0	20	-	-
8	1B	0	-	0	20	-	-
8	2B	0	-	0	20	-	-
9	1A	0	-	0	20	-	-
9	2A	0	-	0	20	-	-
9	1B	0	-	0	20	-	-
9	2B	0	-	0	20	-	-
10	1A	0	-	0	20	-	-
10	2A	0	-	0	20	-	-
10	1B	0	-	0	20	-	-
10	2B	0	-	0	20	-	-
11	1A	0	-	0	20	-	-
11	2A	0	-	0	20	-	-
11	1B	0	-	0	20	-	-
11	2B	0	-	0	20	-	-
12	1A	1	-	1	19	-	-
12	2A	0	-	0	20	-	-
12	1B	0	-	0	20	-	-
12	2B	0	-	0	20	-	-
13	1A	0	-	1	19	-	-
13	2A	0	-	0	20	-	-
13	1B	0	-	0	20	-	-
13	2B	0	-	0	20	-	-
14	1A	0	-	1	19	-	-
14	2A	0	-	0	20	-	-
14	1B	0	-	0	20	-	-
14	2B	0	-	0	20	-	-
15	1A	0	-	1	19	-	-
15	2A	0	-	0	20	-	-
15	1B	0	-	0	20	-	-
15	2B	0	-	0	20	-	-

TABLE 9 (Continued)

DILUTION WATER CONTROL: EMBRYO SURVIVAL AND HATCHING DATA FOR
THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY
TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
16	1A	0	-	1	19	-	-
16	2A	0	-	0	20	-	-
16	1B	0	-	0	20	-	-
16	2B	0	-	0	20	-	-
17	1A	0	-	1	19	-	-
17	2A	0	-	0	20	-	-
17	1B	0	-	0	20	-	-
17	2B	0	-	0	20	-	-
18	1A	2	-	3	17	-	-
18	2A	4	-	4	16	-	-
18	1B	2	-	2	18	-	-
18	2B	4	-	4	16	-	-
19	1A	0	-	3	17	-	-
19	2A	0	-	4	16	-	-
19	1B	0	-	2	18	-	-
19	2B	0	-	4	16	-	-
20	1A	0	-	3	17	-	-
20	2A	0	-	4	16	-	-
20	1B	0	-	2	18	-	-
20	2B	0	-	4	16	-	-
21	1A	0	-	3	17	-	-
21	2A	0	-	4	16	-	-
21	1B	0	-	2	18	-	-
21	2B	0	-	4	16	-	-
22	1A	0	-	3	17	-	-
22	2A	0	-	4	16	-	-
22	1B	0	-	2	18	-	-
22	2B	0	-	4	16	-	-
23	1A	0	-	3	17	-	-
23	2A	0	-	4	16	-	-
23	1B	0	-	2	18	-	-
23	2B	0	-	4	16	-	-

TABLE 9 (Continued)

DILUTION WATER CONTROL: EMBRYO SURVIVAL AND HATCHING DATA FOR
THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY
TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
24	1A	0	0	3	17	-	-
24	2A	0	0	4	16	-	-
24	1B	0	0	2	18	-	-
24	2B	0	0	4	16	-	-
25	1A	0	0	3	17	0	0
25	2A	0	0	4	16	0	0
25	1B	0	0	2	18	0	0
25	2B	0	0	4	16	0	0
26	1A	0	0	3	17	0	0
26	2A	0	0	4	16	0	0
26	1B	0	0	2	16	0	2
26	2B	0	0	4	16	0	0
27	1A	0	0	3	16	0	1
27	2A	0	0	4	15	0	1
27	1B	0	0	2	15	0	3
27	2B	0	0	4	16	0	0
28	1A	0	0	3	12	0	5
28	2A	0	0	4	12	0	4
28	1B	0	0	2	7	0	11
28	2B	0	0	4	11	0	5
29	1A	0	0	3	3	0	14
29	2A	0	0	4	6	0	10
29	1B	0	0	2	2	0	16
29	2B	0	0	4	4	0	12
30	1A	0	0	3	1	0	16
30	2A	0	0	4	5	0	11
30	1B	0	0	2	1	0	17
30	2B	1	0	5	0	0	15
31	1A	0	0	3	1	0	16
31	2A	0	0	4	0	0	16
31	1B	0	0	2	1	0	17
31	2B	0	0	5	0	0	15

TABLE 9 (Continued)

DILUTION WATER CONTROL: EMBRYO SURVIVAL AND HATCHING DATA FOR
THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY
TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
32	1A	0	1	3	0	1	16 ^{1a}
32	2A	0	1	4	0	1	15 ^{1a}
32	1B	0	1	2	0	1	17 ^{1a}
32	2B	0	0	5	0	0	15
33	1A	0	0	3	0	1	16 ^{1a}
33	2A	0	0	4	0	1	15 ^{1a}
33	1B	0	0	2	0	1	17 ^{1a}
33	2B	0	0	5	0	0	15 ^{1a}
34	1A	0	0	3	0	1	16 ^{1a}
34	2A	0	0	4	0	1	15 ^{1a}
34	1B	0	0	2	0	1	17 ^{1a}
34	2B	0	0	5	0	0	15 ^{1a}
35	1A	0	0	3	0	1	16 ^{1a}
35	2A	0	0	4	0	1	15 ^{1a}
35	1B	0	0	2	0	1	17 ^{1a}
35	2B	0	0	5	0	0	15 ^{1a}
36	1A	0	0	3	0	1	16 ^{1a}
36	2A	0	0	4	0	1	15 ^{1a}
36	1B	0	0	2	0	1	17 ^{1a}
36	2B	0	0	5	0	0	15 ^{1a}
37	1A	0	0	3	0	1	16 ^{1a}
37	2A	0	0	4	0	1	15 ^{1a}
37	1B	0	0	2	0	1	17 ^{1a}
37	2B	0	0	5	0	0	15 ^{1a}
38	1A	0	0	3	0	1	16 ^{1a}
38	2A	0	0	4	0	1	15 ^{1a}
38	1B	0	0	2	0	1	17 ^{1a}
38	2B	0	0	5	0	0	15 ^{1a}
39	1A	0	0	3	0	1	16 ^{1a,1b}
39	2A	0	0	4	0	1	15 ^{1a}
39	1B	0	0	2	0	1	17 ^{1a}
39	2B	0	0	5	0	0	15 ^{1a}

TABLE 9 (Continued)

DILUTION WATER CONTROL: EMBRYO SURVIVAL AND HATCHING DATA FOR
THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY
TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
40	1A	0	1	3	0	2	15 ^{2a}
40	2A	0	0	4	0	1	15 ^{1a}
40	1B	0	0	2	0	1	17 ^{1a}
40	2B	0	0	5	0	0	15 ^{1a}
41	1A	0	0	3	0	2	15 ^{2a}
41	2A	0	0	4	0	1	15 ^{1a}
41	1B	0	0	2	0	1	17 ^{1a}
41	2B	0	0	5	0	0	15 ^{1a}
42	1A	0	0	3	0	2	15 ^{2a}
42	2A	0	0	4	0	1	15 ^{1a}
42	1B	0	0	2	0	1	17 ^{1a}
42	2B	0	0	5	0	0	15 ^{1a}
43	1A	0	0	3	0	2	15 ^{2a}
43	2A	0	0	4	0	1	15 ^{1a}
43	1B	0	0	2	0	1	17 ^{1a}
43	2B	0	0	5	0	0	15 ^{1a}
44	1A	0	0	3	0	2	15 ^{2a}
44	2A	0	0	4	0	1	15 ^{1a}
44	1B	0	0	2	0	1	17 ^{1a}
44	2B	0	0	5	0	0	15
45	1A	0	0	3	0	2	15 ^{2a}
45	2A	0	0	4	0	1	15 ^{1a}
45	1B	0	0	2	0	1	17 ^{1a}
45	2B	0	0	5	0	0	15
46	1A	0	0	3	0	2	15 ^{2a}
46	2A	0	0	4	0	1	15 ^{1a}
46	1B	0	0	2	0	1	17 ^{1a}
46	2B	0	0	5	0	0	15

† Four replicates per concentration (i.e., 1A - 2B).

a Scoliosis (includes: curved spine, corkscrew tail, and bent spine/tail)

b Pale in color

Company Sanitized. Does not contain TSCA CBI

TABLE 10

IPA CONTROL: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
0	1A	0	-	0	20	-	-
0	2A	0	-	0	20	-	-
0	1B	0	-	0	20	-	-
0	2B	0	-	0	20	-	-
1	1A	0	-	0	20	-	-
1	2A	0	-	0	20	-	-
1	1B	0	-	0	20	-	-
1	2B	0	-	0	20	-	-
2	1A	0	-	0	20	-	-
2	2A	0	-	0	20	-	-
2	1B	0	-	0	20	-	-
2	2B	0	-	0	20	-	-
3	1A	0	-	0	20	-	-
3	2A	0	-	0	20	-	-
3	1B	0	-	0	20	-	-
3	2B	0	-	0	20	-	-
4	1A	0	-	0	20	-	-
4	2A	0	-	0	20	-	-
4	1B	0	-	0	20	-	-
4	2B	0	-	0	20	-	-
5	1A	0	-	0	20	-	-
5	2A	0	-	0	20	-	-
5	1B	0	-	0	20	-	-
5	2B	0	-	0	20	-	-
6	1A	0	-	0	20	-	-
6	2A	0	-	0	20	-	-
6	1B	0	-	0	20	-	-
6	2B	0	-	0	20	-	-
7	1A	0	-	0	20	-	-
7	2A	0	-	0	20	-	-
7	1B	0	-	0	20	-	-
7	2B	1	-	1	19	-	-

TABLE 10 (Continued)

IPA CONTROL: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
8	1A	0	-	0	20	-	-
8	2A	0	-	0	20	-	-
8	1B	0	-	0	20	-	-
8	2B	0	-	1	19	-	-
9	1A	0	-	0	20	-	-
9	2A	0	-	0	20	-	-
9	1B	0	-	0	20	-	-
9	2B	0	-	1	19	-	-
10	1A	0	-	0	20	-	-
10	2A	0	-	0	20	-	-
10	1B	0	-	0	20	-	-
10	2B	0	-	1	19	-	-
11	1A	0	-	0	20	-	-
11	2A	0	-	0	20	-	-
11	1B	0	-	0	20	-	-
11	2B	0	-	1	19	-	-
12	1A	0	-	0	20	-	-
12	2A	0	-	0	20	-	-
12	1B	0	-	0	20	-	-
12	2B	0	-	1	19	-	-
13	1A	0	-	0	20	-	-
13	2A	0	-	0	20	-	-
13	1B	0	-	0	20	-	-
13	2B	0	-	1	19	-	-
14	1A	0	-	0	20	-	-
14	2A	0	-	0	20	-	-
14	1B	1	-	1	19	-	-
14	2B	0	-	1	19	-	-
15	1A	0	-	0	20	-	-
15	2A	0	-	0	20	-	-
15	1B	0	-	1	19	-	-
15	2B	1	-	2	18	-	-

TABLE 10 (Continued)

IPA CONTROL: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
16	1A	0	-	0	20	-	-
16	2A	0	-	0	20	-	-
16	1B	0	-	1	19	-	-
16	2B	0	-	2	18	-	-
17	1A	0	-	0	20	-	-
17	2A	0	-	0	20	-	-
17	1B	0	-	1	19	-	-
17	2B	0	-	2	18	-	-
18	1A	2	-	2	18	-	-
18	2A	2	-	2	18	-	-
18	1B	2	-	3	17	-	-
18	2B	1	-	3	17	-	-
19	1A	0	-	2	18	-	-
19	2A	0	-	2	18	-	-
19	1B	0	-	3	17	-	-
19	2B	0	-	3	17	-	-
20	1A	0	-	2	18	-	-
20	2A	0	-	2	18	-	-
20	1B	0	-	3	17	-	-
20	2B	0	-	3	17	-	-
21	1A	0	-	2	18	-	-
21	2A	0	-	2	18	-	-
21	1B	0	-	3	17	-	-
21	2B	0	-	3	17	-	-
22	1A	0	-	2	18	-	-
22	2A	0	-	2	18	-	-
22	1B	0	-	3	17	-	-
22	2B	0	-	3	17	-	-
23	1A	0	-	2	18	-	-
23	2A	0	-	2	18	-	-
23	1B	0	-	3	17	-	-
23	2B	0	-	3	17	-	-

Company Sanitized. Does not contain TSCA CBI

TABLE 10 (Continued)

IPA CONTROL: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
24	1A	0	-	2	18	-	-
24	2A	0	-	2	18	-	-
24	1B	0	-	3	17	-	-
24	2B	0	-	3	17	-	-
25	1A	0	0	2	18	0	0
25	2A	0	0	2	18	0	0
25	1B	0	0	3	17	0	0
25	2B	0	0	3	17	0	0
26	1A	0	0	2	18	0	0
26	2A	0	0	2	18	0	0
26	1B	0	0	3	17	0	0
26	2B	0	0	3	16	0	1
27	1A	0	0	2	16	0	2
27	2A	0	0	2	11	0	7
27	1B	0	0	3	17	0	0
27	2B	0	1	3	12	1	4
28	1A	0	0	2	10	0	8
28	2A	0	0	2	6	0	12
28	1B	0	0	3	9	0	8
28	2B	0	1	3	8	2	7
29	1A	0	0	2	5	0	13
29	2A	0	0	2	1	0	17
29	1B	0	0	3	5	0	12
29	2B	0	0	3	4	2	11
30	1A	0	0	2	0	0	18
30	2A	0	0	2	1	0	17
30	1B	0	0	3	2	0	15
30	2B	0	0	3	2	2	13
31	1A	0	0	2	0	0	18
31	2A	1	0	3	0	0	17
31	1B	0	0	3	0	0	17
31	2B	0	0	3	0	2	15

Company Sanitized. Does not contain TSCA CBI

TABLE 10 (Continued)

IPA CONTROL: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
32	1A	0	0	2	0	0	18 ^{1a,1d}
32	2A	0	0	3	0	0	17
32	1B	0	0	3	0	0	17 ^{1a,2d}
32	2B	0	0	3	0	2	15 ^{1d}
33	1A	0	0	2	0	0	18 ^{1a,1d}
33	2A	0	0	3	0	0	17 ^{1b}
33	1B	0	0	3	0	0	17 ^{1a,2d}
33	2B	0	0	3	0	2	15 ^{1d}
34	1A	0	0	2	0	0	18 ^{1a,1d}
34	2A	0	0	3	0	0	17 ^{1b}
34	1B	0	0	3	0	0	17 ^{1a,2d}
34	2B	0	0	3	0	2	15 ^{1d}
35	1A	0	0	2	0	0	18 ^{1a,1d}
35	2A	0	1	3	0	1	16
35	1B	0	0	3	0	0	17 ^{1a,2d}
35	2B	0	0	3	0	2	15 ^{1d}
36	1A	0	1	2	0	1	17 ^{1a}
36	2A	0	0	3	0	1	16
36	1B	0	0	3	0	0	17 ^{1a,2d}
36	2B	0	0	3	0	2	15 ^{2d}
37	1A	0	0	2	0	1	17 ^{1a}
37	2A	0	0	3	0	1	16
37	1B	0	0	3	0	0	17 ^{1a,2d}
37	2B	0	0	3	0	2	15 ^{2d}
38	1A	0	0	2	0	1	17 ^{1a}
38	2A	0	0	3	0	1	16
38	1B	0	0	3	0	0	17 ^{1a,2d}
38	2B	0	0	3	0	2	15 ^{2d}
39	1A	0	0	2	0	1	17 ^{1a}
39	2A	0	0	3	0	1	16
39	1B	0	0	3	0	0	17 ^{1a,2d}
39	2B	0	0	3	0	2	15 ^{2bd}

Company Sanitized. Does not contain TSCA CBI

TABLE 10 (Continued)

IPA CONTROL: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
40	1A	0	0	2	0	1	17 ^{1a}
40	2A	0	0	3	0	1	16
40	1B	0	0	3	0	0	17 ^{1a,2d}
40	2B	0	0	3	0	2	15 ^{2bd}
41	1A	0	0	2	0	1	17 ^{1a}
41	2A	0	0	3	0	1	16
41	1B	0	0	3	0	0	17 ^{1a,2d}
41	2B	0	0	3	0	2	15 ^{2bd}
42	1A	0	0	2	0	1	17 ^{1a}
42	2A	0	0	3	0	1	16
42	1B	0	0	3	0	0	17 ^{1a,2d}
42	2B	0	0	3	0	2	15 ^{2bd}
43	1A	0	0	2	0	1	17 ^{1a}
43	2A	0	0	3	0	1	16
43	1B	0	0	3	0	0	17 ^{1a,2d}
43	2B	0	0	3	0	2	15 ^{2bd}
44	1A	0	0	2	0	1	17 ^{1a}
44	2A	0	0	3	0	1	16
44	1B	0	0	3	0	0	17 ^{1a,2d}
44	2B	0	0	3	0	2	15 ^{2bd}
45	1A	0	0	2	0	1	17 ^{1a}
45	2A	0	0	3	0	1	16
45	1B	0	0	3	0	0	17 ^{1a,1d}
45	2B	0	0	3	0	2	15
46	1A	0	0	2	0	1	17 ^{1a}
46	2A	0	0	3	0	1	16
46	1B	0	0	3	0	0	17 ^{1a}
46	2B	0	0	3	0	2	15

† Four replicates per concentration (i.e., 1A - 2B).

a Scoliosis (includes: curved spine, corkscrew tail, and bent spine/tail)

b Pale in color

d Small in size (when compared to appropriate control(s))

Company Sanitized. Does not contain TSCA CBI

TABLE 11

0.30 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW
TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
0	1A	0	-	0	20	-	-
0	2A	0	-	0	20	-	-
0	1B	0	-	0	20	-	-
0	2B	0	-	0	20	-	-
1	1A	0	-	0	20	-	-
1	2A	0	-	0	20	-	-
1	1B	0	-	0	20	-	-
1	2B	0	-	0	20	-	-
2	1A	0	-	0	20	-	-
2	2A	0	-	0	20	-	-
2	1B	0	-	0	20	-	-
2	2B	0	-	0	20	-	-
3	1A	0	-	0	20	-	-
3	2A	0	-	0	20	-	-
3	1B	0	-	0	20	-	-
3	2B	0	-	0	20	-	-
4	1A	0	-	0	20	-	-
4	2A	1	-	1	19	-	-
4	1B	0	-	0	20	-	-
4	2B	0	-	0	20	-	-
5	1A	0	-	0	20	-	-
5	2A	0	-	1	19	-	-
5	1B	0	-	0	20	-	-
5	2B	0	-	0	20	-	-
6	1A	0	-	0	20	-	-
6	2A	0	-	1	19	-	-
6	1B	0	-	0	20	-	-
6	2B	0	-	0	20	-	-
7	1A	0	-	0	20	-	-
7	2A	1	-	2	18	-	-
7	1B	0	-	0	20	-	-
7	2B	0	-	0	20	-	-

Company Sanitized. Does not contain TSCA CBI

TABLE 11 (Continued)

0.30 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
8	1A	0	-	0	20	-	-
8	2A	0	-	2	18	-	-
8	1B	0	-	0	20	-	-
8	2B	0	-	0	20	-	-
9	1A	0	-	0	20	-	-
9	2A	0	-	2	18	-	-
9	1B	0	-	0	20	-	-
9	2B	0	-	0	20	-	-
10	1A	0	-	0	20	-	-
10	2A	0	-	2	18	-	-
10	1B	0	-	0	20	-	-
10	2B	0	-	0	20	-	-
11	1A	0	-	0	20	-	-
11	2A	0	-	2	18	-	-
11	1B	0	-	0	20	-	-
11	2B	0	-	0	20	-	-
12	1A	0	-	0	20	-	-
12	2A	0	-	2	18	-	-
12	1B	0	-	0	20	-	-
12	2B	0	-	0	20	-	-
13	1A	0	-	0	20	-	-
13	2A	0	-	2	18	-	-
13	1B	0	-	0	20	-	-
13	2B	1	-	1	19	-	-
14	1A	0	-	0	20	-	-
14	2A	0	-	2	18	-	-
14	1B	0	-	0	20	-	-
14	2B	0	-	1	19	-	-
15	1A	0	-	0	20	-	-
15	2A	0	-	2	18	-	-
15	1B	0	-	0	20	-	-
15	2B	0	-	1	19	-	-

Company Sanitized. Does not contain TSCA CBI

Company Sanitized. Does not contain TSCA CBI

TABLE 11 (Continued)

0.30 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW
TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
16	1A	0	-	0	20	-	-
16	2A	0	-	2	18	-	-
16	1B	0	-	0	20	-	-
16	2B	0	-	1	19	-	-
17	1A	0	-	0	20	-	-
17	2A	0	-	2	18	-	-
17	1B	0	-	0	20	-	-
17	2B	0	-	1	19	-	-
18	1A	3	-	3	17	-	-
18	2A	1	-	3	17	-	-
18	1B	3	-	3	17	-	-
18	2B	1	-	2	18	-	-
19	1A	0	-	3	17	-	-
19	2A	0	-	3	17	-	-
19	1B	0	-	3	17	-	-
19	2B	0	-	2	18	-	-
20	1A	0	-	3	17	-	-
20	2A	0	-	3	17	-	-
20	1B	0	-	3	17	-	-
20	2B	0	-	2	18	-	-
21	1A	0	-	3	17	-	-
21	2A	0	-	3	17	-	-
21	1B	0	-	3	17	-	-
21	2B	0	-	2	18	-	-
22	1A	0	-	3	17	-	-
22	2A	0	-	3	17	-	-
22	1B	0	-	3	17	-	-
22	2B	0	-	2	18	-	-
23	1A	0	-	3	17	-	-
23	2A	0	-	3	17	-	-
23	1B	0	-	3	17	-	-
23	2B	0	-	2	18	-	-

TABLE 11 (Continued)

0.30 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW
TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
24	1A	0	-	3	17	-	-
24	2A	0	-	3	17	-	-
24	1B	0	-	3	17	-	-
24	2B	0	-	2	18	-	-
25	1A	0	0	3	17	0	0
25	2A	0	0	3	17	0	0
25	1B	0	0	3	17	0	0
25	2B	0	0	2	18	0	0
26	1A	0	0	3	17	0	0
26	2A	0	0	3	17	0	0
26	1B	0	0	3	17	0	0
26	2B	0	0	2	18	0	0
27	1A	0	0	3	11	0	6
27	2A	0	0	3	12	0	5
27	1B	0	0	3	16	0	1
27	2B	0	0	2	17	0	1
28	1A	0	0	3	4	0	13
28	2A	0	0	3	3	0	14
28	1B	0	0	3	13	0	4
28	2B	0	0	2	14	0	4
29	1A	0	0	3	1	0	16
29	2A	0	0	3	1	0	16
29	1B	1	0	4	5	0	11
29	2B	0	0	2	3	0	15
30	1A	0	0	3	0	0	17
30	2A	0	0	3	0	0	17
30	1B	0	0	4	3	0	13
30	2B	0	0	2	1	0	17
31	1A	0	0	3	0	0	17
31	2A	0	0	3	0	0	17
31	1B	0	0	4	1	0	15
31	2B	0	0	2	0	0	18

Company Sanitized. Does not contain TSCA CBI

Company Sanitized. Does not contain TSCA CBI

TABLE 11 (Continued)

0.30 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW
TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
32	1A	0	0	3	0	0	17 ^{1a}
32	2A	0	0	3	0	0	17
32	1B	0	0	4	0	0	16 ^{1a}
32	2B	0	0	2	0	0	18 ^{4a}
33	1A	0	0	3	0	0	17 ^{1a}
33	2A	0	0	3	0	0	17 ^{1b}
33	1B	0	0	4	0	0	16 ^{1a}
33	2B	0	0	2	0	0	18 ^{4a}
34	1A	0	0	3	0	0	17 ^{1a}
34	2A	0	0	3	0	0	17 ^{1b}
34	1B	0	0	4	0	0	16 ^{1a}
34	2B	0	0	2	0	0	18 ^{4a}
35	1A	0	0	3	0	0	17 ^{1a}
35	2A	0	0	3	0	0	17 ^{1b}
35	1B	0	0	4	0	0	16 ^{1a}
35	2B	0	0	2	0	0	18 ^{4a}
36	1A	0	1	3	0	1	16 ^{1a}
36	2A	0	0	3	0	0	17 ^{1b}
36	1B	0	0	4	0	0	16 ^{1a}
36	2B	0	0	2	0	0	18 ^{4a}
37	1A	0	0	3	0	1	16 ^{1a}
37	2A	0	0	3	0	0	17 ^{1b}
37	1B	0	0	4	0	0	16 ^{1a}
37	2B	0	0	2	0	0	18 ^{4a}
38	1A	0	0	3	0	1	16 ^{1a}
38	2A	0	0	3	0	0	17 ^{1b}
38	1B	0	0	4	0	0	16 ^{1a}
38	2B	0	0	2	0	0	18 ^{4a}
39	1A	0	0	3	0	1	16 ^{1a}
39	2A	0	0	3	0	0	17 ^{1b}
39	1B	0	0	4	0	0	16 ^{1a}
39	2B	0	0	2	0	0	18 ^{4a}

Company Sanitized. Does not contain TSCA CR

TABLE 11 (Continued)

0.30 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
40	1A	0	0	3	0	1	16 ^{1a}
40	2A	0	0	3	0	0	17 ^{1b}
40	1B	0	0	4	0	0	16 ^{1a}
40	2B	0	0	2	0	0	18 ^{4a}
41	1A	0	0	3	0	1	16 ^{1a}
41	2A	0	0	3	0	0	17 ^{1b}
41	1B	0	0	4	0	0	16 ^{1a}
41	2B	0	0	2	0	0	18 ^{4a}
42	1A	0	1	3	0	2	15
42	2A	0	0	3	0	0	17 ^{1b}
42	1B	0	0	4	0	0	16 ^{1a}
42	2B	0	0	2	0	0	18 ^{4a}
43	1A	0	0	3	0	2	15
43	2A	0	0	3	0	0	17 ^{1a,1b}
43	1B	0	0	4	0	0	16 ^{1a}
43	2B	0	0	2	0	0	18 ^{4a}
44	1A	0	0	3	0	2	15
44	2A	0	0	3	0	0	17 ^{1a,1b}
44	1B	0	0	4	0	0	16 ^{1a}
44	2B	0	0	2	0	0	18 ^{4a}
45	1A	0	0	3	0	2	15
45	2A	0	1	3	0	1	16 ^{1a}
45	1B	0	0	4	0	0	16 ^{1a}
45	2B	0	0	2	0	0	18 ^{4a}
46	1A	0	0	3	0	2	15
46	2A	0	0	3	0	1	16 ^{1a}
46	1B	0	0	4	0	0	16 ^{1a}
46	2B	0	0	2	0	0	18 ^{4a}

† Four replicates per concentration (i.e., 1A - 2B).

a Scoliosis (includes: curved spine, corkscrew tail, and bent spine/tail)

b Pale in color

Company Sanitized. Does not contain TSCA cat

TABLE 12

0.63 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
0	1A	0	-	0	20	-	-
0	2A	0	-	0	20	-	-
0	1B	0	-	0	20	-	-
0	2B	0	-	0	20	-	-
1	1A	0	-	0	20	-	-
1	2A	0	-	0	20	-	-
1	1B	0	-	0	20	-	-
1	2B	0	-	0	20	-	-
2	1A	0	-	0	20	-	-
2	2A	0	-	0	20	-	-
2	1B	0	-	0	20	-	-
2	2B	0	-	0	20	-	-
3	1A	0	-	0	20	-	-
3	2A	0	-	0	20	-	-
3	1B	0	-	0	20	-	-
3	2B	0	-	0	20	-	-
4	1A	0	-	0	20	-	-
4	2A	0	-	0	20	-	-
4	1B	0	-	0	20	-	-
4	2B	0	-	0	20	-	-
5	1A	0	-	0	20	-	-
5	2A	0	-	0	20	-	-
5	1B	0	-	0	20	-	-
5	2B	0	-	0	20	-	-
6	1A	0	-	0	20	-	-
6	2A	1	-	1	19	-	-
6	1B	0	-	0	20	-	-
6	2B	0	-	0	20	-	-
7	1A	0	-	0	20	-	-
7	2A	0	-	1	19	-	-
7	1B	0	-	0	20	-	-
7	2B	0	-	0	20	-	-

Company Sanitized. Does not contain TSCA CB1

TABLE 12 (Continued)

0.63 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW
TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
8	1A	0	-	0	20	-	-
8	2A	0	-	1	19	-	-
8	1B	0	-	0	20	-	-
8	2B	0	-	0	20	-	-
9	1A	0	-	0	20	-	-
9	2A	0	-	1	19	-	-
9	1B	0	-	0	20	-	-
9	2B	0	-	0	20	-	-
10	1A	0	-	0	20	-	-
10	2A	0	-	1	19	-	-
10	1B	0	-	0	20	-	-
10	2B	0	-	0	20	-	-
11	1A	0	-	0	20	-	-
11	2A	0	-	1	19	-	-
11	1B	0	-	0	20	-	-
11	2B	0	-	0	20	-	-
12	1A	1	-	1	19	-	-
12	2A	0	-	1	19	-	-
12	1B	1	-	1	19	-	-
12	2B	0	-	0	20	-	-
13	1A	0	-	1	19	-	-
13	2A	0	-	1	19	-	-
13	1B	0	-	1	19	-	-
13	2B	0	-	0	20	-	-
14	1A	1	-	2	18	-	-
14	2A	0	-	1	19	-	-
14	1B	0	-	1	19	-	-
14	2B	0	-	0	20	-	-
15	1A	0	-	2	18	-	-
15	2A	0	-	1	19	-	-
15	1B	0	-	1	19	-	-
15	2B	0	-	0	20	-	-

Company Sanitized. Does not contain TSCA CBI

TABLE 12 (Continued)

0.63 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
16	1A	0	-	2	18	-	-
16	2A	0	-	1	19	-	-
16	1B	0	-	1	19	-	-
16	2B	0	-	0	20	-	-
17	1A	0	-	2	18	-	-
17	2A	0	-	1	19	-	-
17	1B	0	-	1	19	-	-
17	2B	0	-	0	20	-	-
18	1A	2	-	4	16	-	-
18	2A	3	-	4	16	-	-
18	1B	2	-	3	17	-	-
18	2B	4	-	4	16	-	-
19	1A	0	-	4	16	-	-
19	2A	0	-	4	16	-	-
19	1B	0	-	3	17	-	-
19	2B	0	-	4	16	-	-
20	1A	0	-	4	16	-	-
20	2A	0	-	4	16	-	-
20	1B	0	-	3	17	-	-
20	2B	0	-	4	16	-	-
21	1A	0	-	4	16	-	-
21	2A	0	-	4	16	-	-
21	1B	0	-	3	17	-	-
21	2B	0	-	4	16	-	-
22	1A	0	-	4	16	-	-
22	2A	0	-	4	16	-	-
22	1B	0	-	3	17	-	-
22	2B	0	-	4	16	-	-
23	1A	0	-	4	16	-	-
23	2A	0	-	4	16	-	-
23	1B	0	-	3	17	-	-
23	2B	0	-	4	16	-	-

Company Sanitized. Does not contain TSCA CBI

TABLE 12 (Continued)

0.63 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW
TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
24	1A	0	-	4	16	-	-
24	2A	0	-	4	16	-	-
24	1B	0	-	3	17	-	-
24	2B	0	-	4	16	-	-
25	1A	0	0	4	16	0	0
25	2A	0	0	4	16	0	0
25	1B	0	0	3	17	0	0
25	2B	0	0	4	16	0	0
26	1A	0	0	4	15	0	1
26	2A	0	0	4	16	0	0
26	1B	0	0	3	17	0	0
26	2B	0	0	4	15	0	1
27	1A	0	0	4	14	0	2
27	2A	0	0	4	15	0	1
27	1B	0	0	3	15	0	2
27	2B	0	0	4	13	0	3
28	1A	0	0	4	9	0	7
28	2A	0	0	4	6	0	10
28	1B	0	0	3	10	0	7
28	2B	0	0	4	9	0	7
29	1A	0	0	4	4	0	12
29	2A	0	0	4	2	0	14
29	1B	0	0	3	2	0	15
29	2B	2	0	6	3	0	11
30	1A	0	0	4	2	0	14
30	2A	0	0	4	0	0	16
30	1B	1	0	4	0	0	16
30	2B	0	0	6	2	0	12
31	1A	0	0	4	0	0	16
31	2A	0	0	4	0	0	16
31	1B	0	0	4	0	0	16
31	2B	0	0	6	0	0	14

Company Sanitized. Does not contain TSCA CBI

TABLE 12 (Continued)

0.63 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW
TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
32	1A	0	1	4	0	1	15 ^{1a}
32	2A	0	0	4	0	0	16
32	1B	0	0	4	0	0	16 ^{1a}
32	2B	0	0	6	0	0	14 ^{1b}
33	1A	0	0	4	0	1	15 ^{1a}
33	2A	0	0	4	0	0	16
33	1B	0	0	4	0	0	16 ^{1a}
33	2B	0	0	6	0	0	14 ^{1b}
34	1A	0	0	4	0	1	15 ^{2a}
34	2A	0	0	4	0	0	16
34	1B	0	0	4	0	0	16 ^{1a}
34	2B	0	0	6	0	0	14 ^{1b}
35	1A	0	0	4	0	1	15 ^{2a}
35	2A	0	0	4	0	0	16
35	1B	0	0	4	0	0	16 ^{1a}
35	2B	0	0	6	0	0	14 ^{1b}
36	1A	0	0	4	0	1	15 ^{2a}
36	2A	0	0	4	0	0	16
36	1B	0	0	4	0	0	16 ^{1a}
36	2B	0	1	6	0	1	13
37	1A	0	0	4	0	1	15 ^{2a}
37	2A	0	0	4	0	0	16
37	1B	0	0	4	0	0	16 ^{1a}
37	2B	0	0	6	0	1	13
38	1A	0	0	4	0	1	15 ^{2a}
38	2A	0	0	4	0	0	16
38	1B	0	0	4	0	0	16 ^{1a}
38	2B	0	0	6	0	1	13
39	1A	0	0	4	0	1	15 ^{2a}
39	2A	0	0	4	0	0	16
39	1B	0	0	4	0	0	16 ^{1a}
39	2B	0	0	6	0	1	13

Company Sanitized. Does not contain TSCA CB

TABLE 12 (Continued)

0.63 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
40	1A	0	0	4	0	1	15 ^{2a}
40	2A	0	0	4	0	0	16
40	1B	0	0	4	0	0	16 ^{1a}
40	2B	0	0	6	0	1	13
41	1A	0	0	4	0	1	15 ^{2a}
41	2A	0	0	4	0	0	16
41	1B	0	0	4	0	0	16 ^{1a}
41	2B	0	0	6	0	1	13
42	1A	0	0	4	0	1	15 ^{2a}
42	2A	0	0	4	0	0	16
42	1B	0	0	4	0	0	16
42	2B	0	0	6	0	1	13 ^{1a}
43	1A	0	0	4	0	1	15 ^{2a}
43	2A	0	0	4	0	0	16
43	1B	0	0	4	0	0	16
43	2B	0	0	6	0	1	13 ^{1a}
44	1A	0	0	4	0	1	15 ^{2a}
44	2A	0	0	4	0	0	16
44	1B	0	0	4	0	0	16
44	2B	0	0	6	0	1	13 ^{1a}
45	1A	0	0	4	0	1	15 ^{2a}
45	2A	0	0	4	0	0	16
45	1B	0	0	4	0	0	16
45	2B	0	0	6	0	1	13 ^{1a}
46	1A	0	0	4	0	1	15 ^{2a}
46	2A	0	0	4	0	0	16 ^{1dd}
46	1B	0	0	4	0	0	16
46	2B	0	0	6	0	1	13 ^{1a}

† Four replicates per concentration (i.e., 1A - 2B).

a Scoliosis (includes: curved spine, corkscrew tail, and bent spine/tail)

b Pale in color

dd Loss of equilibrium

Company Sanitized. Does not contain TSCA CBI

TABLE 13

1.3 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
0	1A	0	-	0	20	-	-
0	2A	0	-	0	20	-	-
0	1B	0	-	0	20	-	-
0	2B	0	-	0	20	-	-
1	1A	0	-	0	20	-	-
1	2A	0	-	0	20	-	-
1	1B	0	-	0	20	-	-
1	2B	0	-	0	20	-	-
2	1A	0	-	0	20	-	-
2	2A	0	-	0	20	-	-
2	1B	0	-	0	20	-	-
2	2B	0	-	0	20	-	-
3	1A	0	-	0	20	-	-
3	2A	0	-	0	20	-	-
3	1B	0	-	0	20	-	-
3	2B	0	-	0	20	-	-
4	1A	0	-	0	20	-	-
4	2A	0	-	0	20	-	-
4	1B	0	-	0	20	-	-
4	2B	0	-	0	20	-	-
5	1A	0	-	0	20	-	-
5	2A	0	-	0	20	-	-
5	1B	0	-	0	20	-	-
5	2B	0	-	0	20	-	-
6	1A	0	-	0	20	-	-
6	2A	0	-	0	20	-	-
6	1B	0	-	0	20	-	-
6	2B	0	-	0	20	-	-
7	1A	0	-	0	20	-	-
7	2A	0	-	0	20	-	-
7	1B	0	-	0	20	-	-
7	2B	0	-	0	20	-	-

Company Sanitized. Does not contain TSCA CR1

TABLE 13 (Continued)

1.3 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
8	1A	0	-	0	20	-	-
8	2A	0	-	0	20	-	-
8	1B	0	-	0	20	-	-
8	2B	0	-	0	20	-	-
9	1A	0	-	0	20	-	-
9	2A	0	-	0	20	-	-
9	1B	0	-	0	20	-	-
9	2B	0	-	0	20	-	-
10	1A	0	-	0	20	-	-
10	2A	0	-	0	20	-	-
10	1B	0	-	0	20	-	-
10	2B	0	-	0	20	-	-
11	1A	0	-	0	20	-	-
11	2A	0	-	0	20	-	-
11	1B	0	-	0	20	-	-
11	2B	0	-	0	20	-	-
12	1A	0	-	0	20	-	-
12	2A	2	-	2	18	-	-
12	1B	0	-	0	20	-	-
12	2B	0	-	0	20	-	-
13	1A	0	-	0	20	-	-
13	2A	0	-	2	18	-	-
13	1B	0	-	0	20	-	-
13	2B	0	-	0	20	-	-
14	1A	0	-	0	20	-	-
14	2A	0	-	2	18	-	-
14	1B	1	-	1	19	-	-
14	2B	0	-	0	20	-	-
15	1A	0	-	0	20	-	-
15	2A	0	-	2	18	-	-
15	1B	0	-	1	19	-	-
15	2B	0	-	0	20	-	-

Company Sanitized. Does not contain TSCA CBI

TABLE 13 (Continued)

1.3 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW
TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
16	1A	0	-	0	20	-	-
16	2A	0	-	2	18	-	-
16	1B	0	-	1	19	-	-
16	2B	0	-	0	20	-	-
17	1A	0	-	0	20	-	-
17	2A	0	-	2	18	-	-
17	1B	0	-	1	19	-	-
17	2B	0	-	0	20	-	-
18	1A	3	-	3	17	-	-
18	2A	1	-	3	17	-	-
18	1B	2	-	3	17	-	-
18	2B	2	-	2	18	-	-
19	1A	0	-	3	17	-	-
19	2A	0	-	3	17	-	-
19	1B	0	-	3	17	-	-
19	2B	0	-	2	18	-	-
20	1A	0	-	3	17	-	-
20	2A	0	-	3	17	-	-
20	1B	0	-	3	17	-	-
20	2B	0	-	2	18	-	-
21	1A	0	-	3	17	-	-
21	2A	0	-	3	17	-	-
21	1B	0	-	3	17	-	-
21	2B	0	-	2	18	-	-
22	1A	0	-	3	17	-	-
22	2A	0	-	3	17	-	-
22	1B	0	-	3	17	-	-
22	2B	0	-	2	18	-	-
23	1A	0	-	3	17	-	-
23	2A	0	-	3	17	-	-
23	1B	0	-	3	17	-	-
23	2B	0	-	2	18	-	-

Company Sanitized. Does not contain TSCA CBI

TABLE 13 (Continued)

1.3 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW
TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
24	1A	0	-	3	17	-	-
24	2A	0	-	3	17	-	-
24	1B	0	-	3	17	-	-
24	2B	0	-	2	18	-	-
25	1A	0	0	3	17	0	0
25	2A	0	0	3	16	0	1
25	1B	0	0	3	17	0	0
25	2B	0	0	2	18	0	0
26	1A	0	0	3	17	0	0
26	2A	0	0	3	16	0	1
26	1B	0	0	3	16	0	1
26	2B	0	0	2	18	0	0
27	1A	0	0	3	15	0	2
27	2A	0	0	3	15	0	2
27	1B	0	0	3	16	0	1
27	2B	0	0	2	16	0	2
28	1A	1	0	4	10	0	6
28	2A	0	0	3	11	0	6
28	1B	0	0	3	12	0	5
28	2B	0	0	2	12	0	6
29	1A	0	0	4	2	0	14
29	2A	0	0	3	3	0	14
29	1B	0	0	3	1	0	16
29	2B	0	0	2	6	0	12
30	1A	0	0	4	1	0	15
30	2A	0	0	3	2	0	15
30	1B	0	0	3	0	0	17
30	2B	0	0	2	3	0	15
31	1A	0	0	4	0	0	16
31	2A	0	0	3	1	0	16
31	1B	0	0	3	0	0	17
31	2B	0	0	2	0	0	18

Company Sanitized. Does not contain TSCA CBI

Company Sanitized. Does not contain TSCA CBI

TABLE 13 (Continued)

1.3 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW
TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
32	1A	0	0	4	0	0	16 ^{1a}
32	2A	0	0	3	0	0	17 ^{1a}
32	1B	0	0	3	0	0	17 ^{1a}
32	2B	0	0	2	0	0	18 ^{2a}
33	1A	0	0	4	0	0	16 ^{1ab}
33	2A	0	0	3	0	0	17 ^{1a}
33	1B	0	0	3	0	0	17 ^{1a}
33	2B	0	0	2	0	0	18 ^{2ab}
34	1A	0	0	4	0	0	16 ^{1ab}
34	2A	0	0	3	0	0	17 ^{1a}
34	1B	0	0	3	0	0	17 ^{1a}
34	2B	0	0	2	0	0	18 ^{2ab}
35	1A	0	1	4	0	1	15
35	2A	0	0	3	0	0	17
35	1B	0	0	3	0	0	17 ^{1a}
35	2B	0	2	2	0	2	16
36	1A	0	0	4	0	1	15
36	2A	0	0	3	0	0	17
36	1B	0	0	3	0	0	17 ^{1a}
36	2B	0	0	2	0	2	16
37	1A	0	0	4	0	1	15
37	2A	0	0	3	0	0	17
37	1B	0	0	3	0	0	17 ^{1a}
37	2B	0	0	2	0	2	16
38	1A	0	0	4	0	1	15
38	2A	0	0	3	0	0	17
38	1B	0	0	3	0	0	17 ^{1a}
38	2B	0	0	2	0	2	16
39	1A	0	0	4	0	1	15
39	2A	0	0	3	0	0	17
39	1B	0	0	3	0	0	17 ^{1a}
39	2B	0	0	2	0	2	16

Company Sanitized. Does not contain TSCA CBI

TABLE 13 (Continued)

1.3 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
40	1A	0	0	4	0	1	15
40	2A	0	0	3	0	0	17
40	1B	0	0	3	0	0	17 ^{1a}
40	2B	0	0	2	0	2	16
41	1A	0	0	4	0	1	15
41	2A	0	0	3	0	0	17
41	1B	0	0	3	0	0	17 ^{1a}
41	2B	0	0	2	0	2	16
42	1A	0	0	4	0	1	15
42	2A	0	0	3	0	0	17 ^{1a}
42	1B	0	0	3	0	0	17 ^{1a}
42	2B	0	0	2	0	2	16
43	1A	0	0	4	0	1	15
43	2A	0	0	3	0	0	17 ^{1a}
43	1B	0	0	3	0	0	17 ^{1a}
43	2B	0	0	2	0	2	16
44	1A	0	0	4	0	1	15
44	2A	0	0	3	0	0	17 ^{1a}
44	1B	0	0	3	0	0	17 ^{1a}
44	2B	0	0	2	0	2	16
45	1A	0	0	4	0	1	15
45	2A	0	0	3	0	0	17 ^{1a}
45	1B	0	0	3	0	0	17 ^{1a}
45	2B	0	0	2	0	2	16
46	1A	0	0	4	0	1	15 ^{1d}
46	2A	0	0	3	0	0	17 ^{1a}
46	1B	0	0	3	0	0	17
46	2B	0	0	2	0	2	16

† Four replicates per concentration (i.e., 1A - 2B).

a Scoliosis (includes: curved spine, corkscrew tail, and bent spine/tail)

b Pale in color

d Small in size (when compared to appropriate control(s))

Company Sanitized. Does not contain TSCA CBI

TABLE 14

2.5 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW
TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
0	1A	0	-	0	20	-	-
0	2A	0	-	0	20	-	-
0	1B	0	-	0	20	-	-
0	2B	0	-	0	20	-	-
1	1A	0	-	0	20	-	-
1	2A	0	-	0	20	-	-
1	1B	0	-	0	20	-	-
1	2B	0	-	0	20	-	-
2	1A	0	-	0	20	-	-
2	2A	0	-	0	20	-	-
2	1B	0	-	0	20	-	-
2	2B	0	-	0	20	-	-
3	1A	0	-	0	20	-	-
3	2A	0	-	0	20	-	-
3	1B	0	-	0	20	-	-
3	2B	0	-	0	20	-	-
4	1A	0	-	0	20	-	-
4	2A	0	-	0	20	-	-
4	1B	0	-	0	20	-	-
4	2B	0	-	0	20	-	-
5	1A	0	-	0	20	-	-
5	2A	0	-	0	20	-	-
5	1B	0	-	0	20	-	-
5	2B	0	-	0	20	-	-
6	1A	0	-	0	20	-	-
6	2A	0	-	0	20	-	-
6	1B	0	-	0	20	-	-
6	2B	0	-	0	20	-	-
7	1A	2	-	2	18	-	-
7	2A	1	-	1	19	-	-
7	1B	0	-	0	20	-	-
7	2B	0	-	0	20	-	-

Company Sanitized. Does not contain TSCA CBI

TABLE 14 (Continued)

2.5 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
8	1A	0	-	2	18	-	-
8	2A	0	-	1	19	-	-
8	1B	0	-	0	20	-	-
8	2B	0	-	0	20	-	-
9	1A	0	-	2	18	-	-
9	2A	0	-	1	19	-	-
9	1B	0	-	0	20	-	-
9	2B	0	-	0	20	-	-
10	1A	0	-	2	18	-	-
10	2A	0	-	1	19	-	-
10	1B	0	-	0	20	-	-
10	2B	0	-	0	20	-	-
11	1A	0	-	2	18	-	-
11	2A	0	-	1	19	-	-
11	1B	0	-	0	20	-	-
11	2B	0	-	0	20	-	-
12	1A	0	-	2	18	-	-
12	2A	1	-	2	18	-	-
12	1B	0	-	0	20	-	-
12	2B	0	-	0	20	-	-
13	1A	0	-	2	18	-	-
13	2A	0	-	2	18	-	-
13	1B	0	-	0	20	-	-
13	2B	1	-	1	19	-	-
14	1A	0	-	2	18	-	-
14	2A	0	-	2	18	-	-
14	1B	1	-	1	19	-	-
14	2B	0	-	1	19	-	-
15	1A	0	-	2	18	-	-
15	2A	0	-	2	18	-	-
15	1B	0	-	1	19	-	-
15	2B	0	-	1	19	-	-

Company Sanitized. Does not contain TSCA CAS

TABLE 14 (Continued)

2.5 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW
TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
16	1A	0	-	2	18	-	-
16	2A	0	-	2	18	-	-
16	1B	0	-	1	19	-	-
16	2B	0	-	1	19	-	-
17	1A	0	-	2	18	-	-
17	2A	0	-	2	18	-	-
17	1B	0	-	1	19	-	-
17	2B	0	-	1	19	-	-
18	1A	2	-	4	16	-	-
18	2A	2	-	4	16	-	-
18	1B	3	-	4	16	-	-
18	2B	1	-	2	18	-	-
19	1A	0	-	4	16	-	-
19	2A	1	-	5	15	-	-
19	1B	0	-	4	16	-	-
19	2B	0	-	2	18	-	-
20	1A	0	-	4	16	-	-
20	2A	0	-	5	15	-	-
20	1B	0	-	4	16	-	-
20	2B	0	-	2	18	-	-
21	1A	0	-	4	16	-	-
21	2A	0	-	5	15	-	-
21	1B	0	-	4	16	-	-
21	2B	0	-	2	18	-	-
22	1A	0	-	4	16	-	-
22	2A	0	-	5	15	-	-
22	1B	0	-	4	16	-	-
22	2B	0	-	2	18	-	-
23	1A	0	-	4	16	-	-
23	2A	0	-	5	15	-	-
23	1B	0	-	4	16	-	-
23	2B	0	-	2	18	-	-

Company Sanitized. Does not contain TSCA CBI

TABLE 14 (Continued)

2.5 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
24	1A	0	-	4	16	-	-
24	2A	0	-	5	15	-	-
24	1B	0	-	4	16	-	-
24	2B	0	-	2	18	-	-
25	1A	0	0	4	16	0	0
25	2A	0	0	5	15	0	0
25	1B	0	0	4	16	0	0
25	2B	0	0	2	18	0	0
26	1A	0	0	4	16	0	0
26	2A	0	0	5	15	0	0
26	1B	0	0	4	16	0	0
26	2B	0	0	2	18	0	0
27	1A	1	0	5	13	0	2
27	2A	0	0	5	15	0	0
27	1B	0	0	4	9	0	7
27	2B	0	0	2	16	0	2
28	1A	0	0	5	10	0	5
28	2A	0	0	5	13	0	2
28	1B	0	0	4	5	0	11
28	2B	0	0	2	13	0	5
29	1A	2	0	7	4	0	9
29	2A	0	0	5	10	0	5
29	1B	0	0	4	1	0	15
29	2B	0	0	2	5	0	13
30	1A	0	0	7	2	0	11
30	2A	0	0	5	4	0	11
30	1B	0	0	4	0	0	16
30	2B	0	0	2	3	0	15
31	1A	0	0	7	2	0	11
31	2A	0	0	5	3	0	12
31	1B	0	0	4	0	0	16
31	2B	0	0	2	2	0	16

Company Sanitized. Does not contain TSCA CB

TABLE 14 (Continued)

2.5 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW
TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
32	1A	0	0	7	1	0	12
32	2A	2	0	7	0	0	13
32	1B	0	0	4	0	0	16
32	2B	1	0	3	0	0	17
33	1A	0	0	7	0	0	13
33	2A	0	0	7	0	0	13
33	1B	0	0	4	0	0	16
33	2B	0	0	3	0	0	17 ^{lbd}
34	1A	0	0	7	0	0	13
34	2A	0	0	7	0	0	13 ^{la}
34	1B	0	0	4	0	0	16
34	2B	0	0	3	0	0	17 ^{lbd}
35	1A	0	0	7	0	0	13
35	2A	0	0	7	0	0	13 ^{la}
35	1B	0	0	4	0	0	16
35	2B	0	0	3	0	0	17 ^{lbd}
36	1A	0	0	7	0	0	13
36	2A	0	0	7	0	0	13 ^{la}
36	1B	0	0	4	0	0	16
36	2B	0	0	3	0	0	17 ^{lbd}
37	1A	0	0	7	0	0	13
37	2A	0	0	7	0	0	13 ^{la}
37	1B	0	0	4	0	0	16
37	2B	0	0	3	0	0	17 ^{lbd}
38	1A	0	0	7	0	0	13
38	2A	0	0	7	0	0	13 ^{la}
38	1B	0	0	4	0	0	16 ^{lb}
38	2B	0	0	3	0	0	17 ^{lbd}
39	1A	0	0	7	0	0	13
39	2A	0	0	7	0	0	13 ^{la}
39	1B	0	0	4	0	0	16 ^{lb}
39	2B	0	0	3	0	0	17 ^{lbd}

Company Sanitized. Does not contain TSCA CBI

TABLE 14 (Continued)

2.5 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
40	1A	0	0	7	0	0	13
40	2A	0	0	7	0	0	13 ^{1a}
40	1B	0	1	4	0	1	15
40	2B	0	0	3	0	0	17 ^{1bd}
41	1A	0	0	7	0	0	13
41	2A	0	0	7	0	0	12 ^{1a*}
41	1B	0	0	4	0	1	15
41	2B	0	0	3	0	0	17 ^{1bd}
42	1A	0	0	7	0	0	13
42	2A	0	0	7	0	0	12 ^{1a}
42	1B	0	0	4	0	1	15
42	2B	0	0	3	0	0	17 ^{1bd}
43	1A	0	0	7	0	0	13
43	2A	0	0	7	0	0	12 ^{1a}
43	1B	0	0	4	0	1	15
43	2B	0	0	3	0	0	17 ^{1bd}
44	1A	0	0	7	0	0	13
44	2A	0	0	7	0	0	12 ^{1a}
44	1B	0	0	4	0	1	15
44	2B	0	1	3	0	1	16
45	1A	0	0	7	0	0	13
45	2A	0	0	7	0	0	12 ^{1a}
45	1B	0	0	4	0	1	15
45	2B	0	1	3	0	1	16
46	1A	0	0	7	0	0	13
46	2A	0	0	7	0	0	12 ^{1a}
46	1B	0	0	4	0	1	15
46	2B	0	0	3	0	1	16

† Four replicates per concentration (i.e., 1A - 2B).

a Scoliosis (includes: curved spine, corkscrew tail, and bent spine/tail)

b Pale in color

d Small in size (when compared to appropriate control(s))

* One larvae missing, possibly escaped from embryo cup and went down standpipe drain.

Company Sanitized. Does not contain TSCA CB1

TABLE 15

5.0 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW
TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
0	1A	0	-	0	20	-	-
0	2A	0	-	0	20	-	-
0	1B	0	-	0	20	-	-
0	2B	0	-	0	20	-	-
1	1A	0	-	0	20	-	-
1	2A	0	-	0	20	-	-
1	1B	0	-	0	20	-	-
1	2B	0	-	0	20	-	-
2	1A	0	-	0	20	-	-
2	2A	0	-	0	20	-	-
2	1B	0	-	0	20	-	-
2	2B	0	-	0	20	-	-
3	1A	0	-	0	20	-	-
3	2A	0	-	0	20	-	-
3	1B	0	-	0	20	-	-
3	2B	0	-	0	20	-	-
4	1A	0	-	0	20	-	-
4	2A	0	-	0	20	-	-
4	1B	0	-	0	20	-	-
4	2B	0	-	0	20	-	-
5	1A	0	-	0	20	-	-
5	2A	0	-	0	20	-	-
5	1B	0	-	0	20	-	-
5	2B	0	-	0	20	-	-
6	1A	0	-	0	20	-	-
6	2A	0	-	0	20	-	-
6	1B	0	-	0	20	-	-
6	2B	0	-	0	20	-	-
7	1A	0	-	0	20	-	-
7	2A	0	-	0	20	-	-
7	1B	0	-	0	20	-	-
7	2B	0	-	0	20	-	-

TABLE 15 (Continued)

5.0 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW
TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
8	1A	0	-	0	20	-	-
8	2A	0	-	0	20	-	-
8	1B	0	-	0	20	-	-
8	2B	0	-	0	20	-	-
9	1A	0	-	0	20	-	-
9	2A	0	-	0	20	-	-
9	1B	0	-	0	20	-	-
9	2B	0	-	0	20	-	-
10	1A	0	-	0	20	-	-
10	2A	0	-	0	20	-	-
10	1B	0	-	0	20	-	-
10	2B	0	-	0	20	-	-
11	1A	0	-	0	20	-	-
11	2A	0	-	0	20	-	-
11	1B	0	-	0	20	-	-
11	2B	0	-	0	20	-	-
12	1A	0	-	0	20	-	-
12	2A	0	-	0	20	-	-
12	1B	0	-	0	20	-	-
12	2B	0	-	0	20	-	-
13	1A	0	-	0	20	-	-
13	2A	0	-	0	20	-	-
13	1B	0	-	0	20	-	-
13	2B	0	-	0	20	-	-
14	1A	0	-	0	20	-	-
14	2A	0	-	0	20	-	-
14	1B	0	-	0	20	-	-
14	2B	0	-	0	20	-	-
15	1A	0	-	0	20	-	-
15	2A	0	-	0	20	-	-
15	1B	1	-	1	19	-	-
15	2B	0	-	0	20	-	-

TABLE 15 (Continued)

5.0 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
16	1A	0	-	0	20	-	-
16	2A	0	-	0	20	-	-
16	1B	0	-	1	19	-	-
16	2B	0	-	0	20	-	-
17	1A	0	-	0	20	-	-
17	2A	0	-	0	20	-	-
17	1B	0	-	1	19	-	-
17	2B	0	-	0	20	-	-
18	1A	3	-	3	17	-	-
18	2A	2	-	2	18	-	-
18	1B	1	-	2	18	-	-
18	2B	2	-	2	18	-	-
19	1A	0	-	3	17	-	-
19	2A	0	-	2	18	-	-
19	1B	0	-	2	18	-	-
19	2B	0	-	2	18	-	-
20	1A	0	-	3	17	-	-
20	2A	0	-	2	18	-	-
20	1B	0	-	2	18	-	-
20	2B	0	-	2	18	-	-
21	1A	0	-	3	17	-	-
21	2A	0	-	2	18	-	-
21	1B	0	-	2	18	-	-
21	2B	0	-	2	18	-	-
22	1A	0	-	3	17	-	-
22	2A	0	-	2	18	-	-
22	1B	0	-	2	18	-	-
22	2B	0	-	2	18	-	-
23	1A	0	-	3	17	-	-
23	2A	0	-	2	18	-	-
23	1B	0	-	2	18	-	-
23	2B	0	-	2	18	-	-

TABLE 15 (Continued)

5.0 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
24	1A	0	-	3	17	-	-
24	2A	0	-	2	18	-	-
24	1B	0	-	2	18	-	-
24	2B	0	-	2	18	-	-
25	1A	0	0	3	17	0	0
25	2A	0	0	2	17	0	1
25	1B	0	0	2	18	0	0
25	2B	1	0	3	17	0	0
26	1A	0	0	3	15	0	2
26	2A	0	0	2	17	0	1
26	1B	0	0	2	18	0	0
26	2B	0	0	3	17	0	0
27	1A	0	0	3	13	0	4
27	2A	0	0	2	15	0	3
27	1B	0	0	2	18	0	0
27	2B	0	0	3	17	0	0
28	1A	0	0	3	5	0	12
28	2A	0	0	2	12	0	6
28	1B	0	0	2	15	0	3
28	2B	0	0	3	13	0	4
29	1A	0	0	3	1	0	16
29	2A	0	0	2	6	0	12
29	1B	0	0	2	10	0	8
29	2B	0	0	3	6	0	11
30	1A	0	0	3	0	0	17
30	2A	0	0	2	3	0	15
30	1B	0	0	2	3	0	15
30	2B	1	0	4	5	0	11
31	1A	0	0	3	0	0	17
31	2A	0	0	2	1	0	17
31	1B	0	0	2	1	0	17
31	2B	0	0	4	1	0	15

TABLE 15 (Continued)

5.0 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
32	1A	0	0	3	0	0	17
32	2A	0	0	2	1	0	17 ^{2a}
32	1B	0	0	2	0	0	18
32	2B	0	0	4	0	0	16
33	1A	0	0	3	0	0	17
33	2A	1	0	3	0	0	17 ^{2a}
33	1B	0	0	2	0	0	18 ^{1a}
33	2B	0	0	4	0	0	16
34	1A	0	0	3	0	0	17
34	2A	0	0	3	0	0	17 ^{2a}
34	1B	0	0	2	0	0	18 ^{1a}
34	2B	0	0	4	0	0	16
35	1A	0	0	3	0	0	17
35	2A	0	0	3	0	0	17 ^{2a}
35	1B	0	0	2	0	0	18 ^{1a}
35	2B	0	0	4	0	0	16
36	1A	0	0	3	0	0	17
36	2A	0	0	3	0	0	17 ^{2a}
36	1B	0	0	2	0	0	18 ^{1a}
36	2B	0	0	4	0	0	16
37	1A	0	0	3	0	0	17
37	2A	0	0	3	0	0	17 ^{2a}
37	1B	0	0	2	0	0	18 ^{1a}
37	2B	0	0	4	0	0	16
38	1A	0	0	3	0	0	17
38	2A	0	0	3	0	0	17 ^{2a}
38	1B	0	0	2	0	0	18 ^{1a}
38	2B	0	0	4	0	0	16
39	1A	0	0	3	0	0	17
39	2A	0	1	3	0	1	16 ^{1a}
39	1B	0	0	2	0	0	18 ^{1a}
39	2B	0	0	4	0	0	16

Company Sanitized. Does not contain TSCA C5:

TABLE 15 (Continued)

5.0 mg/L: EMBRYO SURVIVAL AND HATCHING DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate [†]	Dead Eggs Removed	Dead Larvae Removed	Cumulative Dead Eggs	Live Eggs Left	Cumulative Dead Larvae	Live Larvae
40	1A	0	0	3	0	0	17
40	2A	0	0	3	0	1	16 ^{1a}
40	1B	0	0	2	0	0	18 ^{1a}
40	2B	0	0	4	0	0	16
41	1A	0	0	3	0	0	17
41	2A	0	0	3	0	1	16 ^{1a}
41	1B	0	0	2	0	0	18 ^{1a}
41	2B	0	0	4	0	0	16
42	1A	0	0	3	0	0	17
42	2A	0	0	3	0	1	16 ^{2a}
42	1B	0	0	2	0	0	18 ^{2a}
42	2B	0	0	4	0	0	16
43	1A	0	0	3	0	0	17
43	2A	0	0	3	0	1	16 ^{2a}
43	1B	0	0	2	0	0	18 ^{2a}
43	2B	0	0	4	0	0	16
44	1A	0	0	3	0	0	17
44	2A	0	0	3	0	1	16 ^{2a}
44	1B	0	0	2	0	0	18 ^{2a}
44	2B	0	0	4	0	0	16
45	1A	0	0	3	0	0	17
45	2A	0	0	3	0	1	16 ^{2a}
45	1B	0	0	2	0	0	18 ^{2a}
45	2B	0	0	4	0	0	16
46	1A	0	0	3	0	0	17
46	2A	0	0	3	0	1	16 ^{2a}
46	1B	0	0	2	0	0	18 ^{2a}
46	2B	0	0	4	0	0	16

[†] Four replicates per concentration (i.e., 1A - 2B).

^a Scoliosis (includes: curved spine, corkscrew tail, and bent spine/tail)

Company Sanitized. Does not contain TSCA CRT

TABLE 16

DILUTION WATER CONTROL: SWIM-UP DATA FOR THE 90-DAY RAINBOW TROUT,
Oncorhynchus mykiss, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Total Live Larvae	Total Larvae Swimming Up
40	1A	15	3
40	2A	15	2
40	1B	17	3
40	2B	15	4
41	1A	15	3
41	2A	15	4
41	1B	17	4
41	2B	15	4
42	1A	15	3
42	2A	15	4
42	1B	17	4
42	2B	15	4
43	1A	15	4
43	2A	15	5
43	1B	17	6
43	2B	15	6
44	1A	15	5
44	2A	15	7
44	1B	17	6
44	2B	15	7
45	1A	15	6
45	2A	15	8
45	1B	17	9
45	2B	15	11
46	1A	15	7
46	2A	15	8
46	1B	17	9
46	2B	15	11

Company Sanitized. Does not contain TSCA CBI

TABLE 17

IPA CONTROL: SWIM-UP DATA FOR THE 90-DAY RAINBOW TROUT,
Oncorhynchus mykiss, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Total Live Larvae	Total Larvae Swimming Up
40	1A	17	0
40	2A	16	3
40	1B	17	1
40	2B	15	4
41	1A	17	3
41	2A	16	3
41	1B	17	3
41	2B	15	4
42	1A	17	4
42	2A	16	6
42	1B	17	3
42	2B	15	5
43	1A	17	4
43	2A	16	6
43	1B	17	4
43	2B	15	5
44	1A	17	5
44	2A	16	9
44	1B	17	5
44	2B	15	5
45	1A	17	8
45	2A	16	9
45	1B	17	8
45	2B	15	10
46	1A	17	8
46	2A	16	9
46	1B	17	10
46	2B	15	10

Company Sanitized. Does not contain TSCA CBI

TABLE 18.

0.30 mg/L: SWIM-UP DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*,
EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Total Live Larvae	Total Larvae Swimming Up
40	1A	16	6
40	2A	17	5
40	1B	16	3
40	2B	18	1
41	1A	16	4
41	2A	17	4
41	1B	16	3
41	2B	18	4
42	1A	15	5
42	2A	17	3
42	1B	16	3
42	2B	18	4
43	1A	15	5
43	2A	17	4
43	1B	16	3
43	2B	18	5
44	1A	15	4
44	2A	17	3
44	1B	16	6
44	2B	18	5
45	1A	15	8
45	2A	16	10
45	1B	16	11
45	2B	18	11
46	1A	15	9
46	2A	16	10
46	1B	16	11
46	2B	18	11

Company Sanitized. Does not contain TSCA CBI

TABLE 19

0.63 mg/L: SWIM-UP DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*,
EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Total Live Larvae	Total Larvae Swimming Up
40	1A	15	4
40	2A	16	1
40	1B	16	2
40	2B	13	4
41	1A	15	5
41	2A	16	2
41	1B	16	5
41	2B	13	4
42	1A	15	4
42	2A	16	3
42	1B	16	6
42	2B	13	4
43	1A	15	5
43	2A	16	4
43	1B	16	6
43	2B	13	5
44	1A	15	7
44	2A	16	6
44	1B	16	6
44	2B	13	7
45	1A	15	11
45	2A	16	8
45	1B	16	8
45	2B	13	8
46	1A	15	11
46	2A	16	8
46	1B	16	11
46	2B	13	10

Company Sanitized. Does not contain TSCA CBI

TABLE 20

1.3 mg/L: SWIM-UP DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*,
EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Total Live Larvae	Total Larvae Swimming Up
40	1A	15	1
40	2A	17	1
40	1B	17	1
40	2B	16	0
41	1A	15	3
41	2A	17	3
41	1B	17	4
41	2B	16	2
42	1A	15	4
42	2A	17	6
42	1B	17	7
42	2B	16	5
43	1A	15	4
43	2A	17	6
43	1B	17	7
43	2B	16	6
44	1A	15	5
44	2A	17	6
44	1B	17	8
44	2B	16	11
45	1A	15	8
45	2A	17	6
45	1B	17	11
45	2B	16	10
46	1A	15	8
46	2A	17	9
46	1B	17	11
46	2B	16	11

Company Sanitized. Does not contain TSCA CBI

TABLE 21

2.5 mg/L: SWIM-UP DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*,
EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Total Live Larvae	Total Larvae Swimming Up
40	1A	13	0
40	2A	13	0
40	1B	15	3
40	2B	17	0
41	1A	13	2
41	2A	12	0
41	1B	15	3
41	2B	17	1
42	1A	13	2
42	2A	12	1
42	1B	15	5
42	2B	17	4
43	1A	13	4
43	2A	12	2
43	1B	15	4
43	2B	17	6
44	1A	13	6
44	2A	12	4
44	1B	15	5
44	2B	16	5
45	1A	13	4
45	2A	12	8
45	1B	15	6
45	2B	16	8
46	1A	13	6
46	2A	12	8
46	1B	15	9
46	2B	16	9

Company Sanitized. Does not contain TSCA CB!

TABLE 22

5.0 mg/L: SWIM-UP DATA FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*,
EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Total Live Larvae	Total Larvae Swimming Up
40	1A	17	1
40	2A	16	0
40	1B	18	0
40	2B	16	1
41	1A	17	2
41	2A	16	1
41	1B	18	0
41	2B	16	2
42	1A	17	4
42	2A	16	1
42	1B	18	2
42	2B	16	2
43	1A	17	6
43	2A	16	4
43	1B	18	5
43	2B	16	5
44	1A	17	7
44	2A	16	4
44	1B	18	7
44	2B	16	8
45	1A	17	7
45	2A	16	4
45	1B	18	7
45	2B	16	10
46	1A	17	8
46	2A	16	8
46	1B	18	8
46	2B	16	10

Company Sanitized. Does not contain TSCA CBI

TABLE 23.

DILUTION WATER CONTROL: LARVAL MORTALITY AFTER THINNING FOR THE
90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
46	A	15	0	0	15 ^{1a}
46	B	15	0	0	15
47	A	15	0	0	15 ^{1a}
47	B	15	0	0	15
48	A	15	0	0	15 ^{1a}
48	B	15	0	0	15
49	A	15	0	0	15 ^{1a}
49	B	15	0	0	15
50	A	15	0	0	15 ^{1a}
50	B	15	0	0	15
51	A	15	0	0	15 ^{1a}
51	B	15	0	0	15
52	A	15	0	0	15 ^{1a}
52	B	15	0	0	15
53	A	15	0	0	15
53	B	15	0	0	15
54	A	15	0	0	15
54	B	15	0	0	15
55	A	15	0	0	15
55	B	15	0	0	15
56	A	15	0	0	15
56	B	15	0	0	15
57	A	15	0	0	15
57	B	15	0	0	15
58	A	15	0	0	15
58	B	15	0	0	15
59	A	15	0	0	15
59	B	15	0	0	15
60	A	15	0	0	15
60	B	15	0	0	15
61	A	15	0	0	15
61	B	15	0	0	15
62	A	15	0	0	15
62	B	15	0	0	15

TABLE 23 (Continued)

DILUTION WATER CONTROL: LARVAL MORTALITY AFTER THINNING FOR THE
90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
63	A	15	0	0	15
63	B	15	0	0	15
64	A	15	0	0	15
64	B	15	0	0	15
65	A	15	0	0	15
65	B	15	0	0	15
66	A	15	0	0	15
66	B	15	0	0	15
67	A	15	0	0	15
67	B	15	0	0	15
68	A	15	0	0	15
68	B	15	0	0	15
69	A	15	0	0	15
69	B	15	0	0	15
70	A	15	0	0	15
70	B	15	0	0	15
71	A	15	0	0	15
71	B	15	0	0	15
72	A	15	0	0	15
72	B	15	0	0	15
73	A	15	0	0	15
73	B	15	0	0	15
74	A	15	0	0	15
74	B	15	0	0	15
75	A	15	0	0	15
75	B	15	0	0	15
76	A	15	0	0	15
76	B	15	0	0	15
77	A	15	0	0	15
77	B	15	0	0	15
78	A	15	0	0	15
78	B	15	0	0	15

Company Sanitized. Does not contain TSCA CBI

TABLE 23 (Continued)

DILUTION WATER CONTROL: LARVAL MORTALITY AFTER THINNING FOR THE
90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
79	A	15	0	0	15
79	B	15	0	0	15
80	A	15	0	0	15
80	B	15	0	0	15
81	A	15	0	0	15
81	B	15	0	0	15
82	A	15	0	0	15
82	B	15	0	0	15
83	A	15	0	0	15
83	B	15	0	0	15
84	A	15	0	0	15
84	B	15	0	0	15
85	A	15	0	0	15
85	B	15	0	0	15
86	A	15	0	0	15
86	B	15	0	0	15
87	A	15	0	0	15
87	B	15	0	0	15
88	A	15	0	0	15
88	B	15	0	0	15
89	A	15	0	0	15
89	B	15	0	0	15
90	A	15	0	0	15
90	B	15	0	0	15

a Scoliosis (includes: curved spine, corkscrew tail, and bent spine/tail)

Company Sanitized. Does not contain TSCA CBI

TABLE 24

IPA CONTROL: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
46	A	15	0	0	15 ^{la}
46	B	15	0	0	15 ^{lff}
47	A	15	0	0	15 ^{la}
47	B	15	0	0	15 ^{lff}
48	A	15	0	0	15 ^{la}
48	B	15	0	0	15
49	A	15	0	0	15 ^{la}
49	B	15	0	0	15
50	A	15	0	0	15 ^{la}
50	B	15	0	0	15
51	A	15	0	0	15 ^{la}
51	B	15	0	0	15
52	A	15	0	0	15 ^{la}
52	B	15	0	0	15
53	A	15	0	0	15 ^{la}
53	B	15	0	0	15
54	A	15	0	0	15 ^{la}
54	B	15	0	0	15
55	A	15	0	0	15 ^{la}
55	B	15	0	0	15
56	A	15	0	0	15 ^{la}
56	B	15	0	0	15
57	A	15	0	0	15 ^{la}
57	B	15	0	0	15
58	A	15	0	0	15 ^{la}
58	B	15	0	0	15
59	A	15	0	0	15 ^{la}
59	B	15	0	0	15
60	A	15	0	0	15 ^{la}
60	B	15	0	0	15
61	A	15	0	0	15 ^{la}
61	B	15	0	0	15
62	A	15	0	0	15 ^{la}
62	B	15	0	0	15

Company Sanitized. Does not contain TSCA CBI

TABLE 24 (Continued)

IPA CONTROL: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
63	A	15	0	0	15 ^{1a}
63	B	15	0	0	15
64	A	15	0	0	15
64	B	15	0	0	15
65	A	15	0	0	15
65	B	15	0	0	15
66	A	15	0	0	15
66	B	15	0	0	15
67	A	15	0	0	15
67	B	15	0	0	15
68	A	15	0	0	15
68	B	15	0	0	15
69	A	15	0	0	15
69	B	15	0	0	15
70	A	15	0	0	15
70	B	15	0	0	15
71	A	15	0	0	15
71	B	15	0	0	15
72	A	15	0	0	15
72	B	15	0	0	15
73	A	15	0	0	15
73	B	15	0	0	15
74	A	15	0	0	15
74	B	15	0	0	15
75	A	15	0	0	15
75	B	15	0	0	15
76	A	15	0	0	15
76	B	15	0	0	15
77	A	15	0	0	15
77	B	15	0	0	15
78	A	15	0	0	15
78	B	15	0	0	15

Company Sanitized. Does not contain TSCA CBI

TABLE 24 (Continued)

IPA CONTROL: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
79	A	15	0	0	15
79	B	15	0	0	15
80	A	15	0	0	15
80	B	15	0	0	15
81	A	15	0	0	15
81	B	15	0	0	15
82	A	15	0	0	15
82	B	15	0	0	15
83	A	15	0	0	15
83	B	15	0	0	15
84	A	15	0	0	15
84	B	15	0	0	15
85	A	15	0	0	15
85	B	15	0	0	15
86	A	15	0	0	15
86	B	15	0	0	15
87	A	15	0	0	15
87	B	15	0	0	15
88	A	15	0	0	15
88	B	15	0	0	15
89	A	15	0	0	15
89	B	15	0	0	15
90	A	15	0	0	15
90	B	15	0	0	15

a Scoliosis (includes: curved spine, corkscrew tail, and bent spine/tail)

ff Lying on bottom of test chamber

Company Sanitized. Does not contain TSCA CBI

TABLE 25

0.30 mg/L: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
46	A	15	0	0	15
46	B	15	0	0	15
47	A	15	0	0	15
47	B	15	0	0	15
48	A	15	0	0	15
48	B	15	0	0	15
49	A	15	0	0	15
49	B	15	0	0	15
50	A	15	0	0	15
50	B	15	0	0	15
51	A	15	0	0	15
51	B	15	0	0	15
52	A	15	0	0	15
52	B	15	0	0	15
53	A	15	0	0	15
53	B	15	0	0	15
54	A	15	0	0	15
54	B	15	0	0	15
55	A	15	0	0	15
55	B	15	0	0	15
56	A	15	0	0	15
56	B	15	0	0	15
57	A	15	0	0	15
57	B	15	0	0	15
58	A	15	0	0	15
58	B	15	0	0	15
59	A	15	0	0	15
59	B	15	0	0	15
60	A	15	0	0	15
60	B	15	0	0	15
61	A	15	0	0	15
61	B	15	0	0	15
62	A	15	0	0	15
62	B	15	0	0	15

Company Sanitized. Does not contain TSCA CB1

TABLE 25 (Continued)

0.30 mg/L: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
63	A	15	0	0	15
63	B	15	0	0	15
64	A	15	0	0	15
64	B	15	0	0	15
65	A	15	0	0	15
65	B	15	0	0	15
66	A	15	0	0	15
66	B	15	0	0	15
67	A	15	0	0	15
67	B	15	0	0	15
68	A	15	0	0	15
68	B	15	0	0	15
69	A	15	0	0	15
69	B	15	0	0	15
70	A	15	0	0	15
70	B	15	0	0	15
71	A	15	0	0	15
71	B	15	0	0	15
72	A	15	0	0	15
72	B	15	0	0	15
73	A	15	0	0	15
73	B	15	0	0	15
74	A	15	0	0	15
74	B	15	0	0	15
75	A	15	0	0	15
75	B	15	0	0	15
76	A	15	0	0	15
76	B	15	0	0	15
77	A	15	0	0	15
77	B	15	0	0	15
78	A	15	0	0	15
78	B	15	1*	1*	14*

Company Sanitized. Does not contain TSCA CBI

TABLE 25 (Continued)

0.30 mg/L: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
79	A	15	0	0	15
79	B	15	0	1	14
80	A	15	0	0	15
80	B	15	0	1	14
81	A	15	0	0	15
81	B	15	0	1	14
82	A	15	0	0	15
82	B	15	0	1	14
83	A	15	0	0	15
83	B	15	0	1	14
84	A	15	0	0	15
84	B	15	0	1	14
85	A	15	0	0	15
85	B	15	0	1	14
86	A	15	0	0	15
86	B	15	0	1	14
87	A	15	0	0	15
87	B	15	0	1	14
88	A	15	0	0	15
88	B	15	0	1	14
89	A	15	0	0	15
89	B	15	0	1	14
90	A	15	0	0	15
90	B	15	0	1	14

* One fish missing (escaped) but counted as dead

Company Sanitized, Does not contain TSCA CBI

TABLE 26

0.63 mg/L: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
46	A	15	0	0	15 ^{1a}
46	B	15	0	0	15
47	A	15	0	0	15 ^{1a}
47	B	15	0	0	15
48	A	15	0	0	15 ^{1a}
48	B	15	0	0	15
49	A	15	0	0	15 ^{1a}
49	B	15	0	0	15
50	A	15	0	0	15 ^{1a}
50	B	15	0	0	15
51	A	15	0	0	15 ^{1a}
51	B	15	0	0	15
52	A	15	0	0	15 ^{1a}
52	B	15	0	0	15
53	A	15	0	0	15 ^{1a}
53	B	15	0	0	15
54	A	15	0	0	15 ^{1a}
54	B	15	0	0	15
55	A	15	0	0	15 ^{1a}
55	B	15	0	0	15
56	A	15	0	0	15 ^{1a}
56	B	15	0	0	15
57	A	15	0	0	15 ^{1a}
57	B	15	0	0	15
58	A	15	0	0	15 ^{1a}
58	B	15	0	0	15
59	A	15	0	0	15 ^{1a}
59	B	15	0	0	15
60	A	15	0	0	15 ^{1a}
60	B	15	0	0	15
61	A	15	0	0	15 ^{1a}
61	B	15	0	0	15
62	A	15	0	0	15 ^{1a}
62	B	15	0	0	15

TABLE 26 (Continued)

0.63 mg/L: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
63	A	15	0	0	15 ^{1a}
63	B	15	0	0	15
64	A	15	0	0	15 ^{1a}
64	B	15	0	0	15
65	A	15	0	0	15 ^{1a}
65	B	15	0	0	15
66	A	15	0	0	15 ^{1a}
66	B	15	0	0	15
67	A	15	0	0	15 ^{1a,ff}
67	B	15	0	0	15
68	A	15	0	0	15 ^{1a,ff}
68	B	15	0	0	15
69	A	15	0	0	15 ^{1a,ff}
69	B	15	0	0	15
70	A	15	0	0	15 ^{1a,ff}
70	B	15	0	0	15
71	A	15	0	0	15 ^{1a,ff}
71	B	15	0	0	15
72	A	15	0	0	15 ^{1a,ff}
72	B	15	0	0	15
73	A	15	0	0	15 ^{1a,ff}
73	B	15	0	0	15
74	A	15	0	0	15 ^{1a,ff}
74	B	15	0	0	15
75	A	15	1	1	14
75	B	15	0	0	15
76	A	15	0	1	14
76	B	15	0	0	15
77	A	15	0	1	14
77	B	15	0	0	15
78	A	15	0	1	14
78	B	15	0	0	15

Company Sanitized. Does not contain TSCA CBI

TABLE 26 (Continued)

0.63 mg/L: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
79	A	15	0	1	14
79	B	15	0	0	15
80	A	15	0	1	14
80	B	15	0	0	15
81	A	15	0	1	14
81	B	15	0	0	15
82	A	15	0	1	14
82	B	15	0	0	15
83	A	15	0	1	14
83	B	15	0	0	15
84	A	15	0	1	14
84	B	15	0	0	15
85	A	15	0	1	14
85	B	15	0	0	15
86	A	15	0	1	14
86	B	15	0	0	15
87	A	15	0	1	14
87	B	15	0	0	15
88	A	15	0	1	14
88	B	15	0	0	15
89	A	15	1	2	13
89	B	15	0	0	15
90	A	15	0	2	13
90	B	15	0	0	15

a Scoliosis (includes: curved spine, corkscrew tail, and bent spine/tail)

ff Lying on bottom of test chamber

TABLE 27

1.3 mg/L: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
46	A	15	0	0	15
46	B	15	0	0	15
47	A	15	0	0	15
47	B	15	0	0	15
48	A	15	0	0	15
48	B	15	0	0	15
49	A	15	0	0	15
49	B	15	0	0	15
50	A	15	0	0	15
50	B	15	0	0	15
51	A	15	0	0	15 ^{1d}
51	B	15	0	0	15
52	A	15	0	0	15 ^{1d}
52	B	15	0	0	15
53	A	15	0	0	15 ^{1d}
53	B	15	0	0	15
54	A	15	0	0	15 ^{1d}
54	B	15	0	0	15
55	A	15	0	0	15 ^{1d}
55	B	15	0	0	15
56	A	15	0	0	15 ^{1d}
56	B	15	0	0	15
57	A	15	0	0	15 ^{1d}
57	B	15	0	0	15
58	A	15	0	0	15 ^{1d}
58	B	15	0	0	15
59	A	15	0	0	15 ^{1d}
59	B	15	0	0	15
60	A	15	0	0	15 ^{1d}
60	B	15	0	0	15
61	A	15	0	0	15 ^{1d}
61	B	15	0	0	15
62	A	15	0	0	15 ^{1d}
62	B	15	0	0	15

TABLE 27 (Continued)

1.3 mg/L: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
63	A	15	0	0	15 ^{1d}
63	B	15	0	0	15
64	A	15	0	0	15 ^{1d,1z,kk}
64	B	15	0	0	15
65	A	15	0	0	15 ^{1d,1z,kk}
65	B	15	0	0	15
66	A	15	0	0	15 ^{1d,1z,kk}
66	B	15	0	0	15
67	A	15	0	0	15 ^{1d,1z,kk}
67	B	15	0	0	15
68	A	15	0	0	15 ^{1d,1z,kk}
68	B	15	0	0	15
69	A	15	0	0	15 ^{1d,1z,kk}
69	B	15	0	0	15
70	A	15	0	0	15 ^{1d,1z}
70	B	15	0	0	15
71	A	15	0	0	15 ^{1d,1z}
71	B	15	0	0	15
72	A	15	0	0	15 ^{1d,1z}
72	B	15	0	0	15
73	A	15	0	0	15 ^{1d,1z}
73	B	15	0	0	15
74	A	15	0	0	15 ^{1d,1z}
74	B	15	0	0	15
75	A	15	0	0	15 ^{1d,1z}
75	B	15	0	0	15
76	A	15	0	0	15 ^{1z}
76	B	15	0	0	15
77	A	15	0	0	15 ^{1z}
77	B	15	0	0	15
78	A	15	0	0	15 ^{1z}
78	B	15	0	0	15

Company Sanitized. Does not contain TSCA ONI

TABLE 27 (Continued)

1.3 mg/L: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
79	A	15	0	0	15 ^{lz}
79	B	15	0	0	15
80	A	15	0	0	15 ^{lz}
80	B	15	0	0	15
81	A	15	0	0	15 ^{lz}
81	B	15	0	0	15
82	A	15	0	0	15 ^{lz}
82	B	15	0	0	15
83	A	15	0	0	15 ^{lz}
83	B	15	0	0	15
84	A	15	0	0	15 ^{lz}
84	B	15	0	0	15
85	A	15	0	0	15 ^{lz}
85	B	15	0	0	15
86	A	15	0	0	15 ^{lz}
86	B	15	0	0	15
87	A	15	0	0	15 ^{lz}
87	B	15	0	0	15
88	A	15	0	0	15 ^{lz}
88	B	15	0	0	15
89	A	15	0	0	15 ^{lz}
89	B	15	0	0	15
90	A	15	0	0	15 ^{lz}
90	B	15	0	0	15

d Small in size (when compared to appropriate control(s))

z Deformed gill (right side)

kk Swimming at water surface

Company Sanitized. Does not contain TSCA CBI

TABLE 28.

2.5 mg/L: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
46	A	15	0	0	15 ^{1a}
46	B	15	0	0	15
47	A	15	0	0	15 ^{1a,1ff}
47	B	15	0	0	15
48	A	15	0	0	15 ^{1a}
48	B	15	0	0	15
49	A	15	0	0	15 ^{1a}
49	B	15	0	0	15
50	A	15	0	0	15 ^{1a}
50	B	15	0	0	15
51	A	15	0	0	15 ^{1a}
51	B	15	0	0	15
52	A	15	0	0	15 ^{1a,1aa,ff}
52	B	15	0	0	15
53	A	15	0	0	15 ^{1a,1aa,ff}
53	B	15	0	0	15
54	A	15	0	0	15 ^{1a,1aa,ff}
54	B	15	0	0	15
55	A	15	0	0	15 ^{1a,1aa,ff}
55	B	15	0	0	15
56	A	15	0	0	15 ^{1a,1aa,ff}
56	B	15	0	0	15
57	A	15	0	0	15 ^{1a,1aa,ff}
57	B	15	0	0	15
58	A	15	0	0	15 ^{1a,1aa,ff}
58	B	15	0	0	15
59	A	15	0	0	15 ^{1a,1aa,ff}
59	B	15	0	0	15
60	A	15	1	1	14 ^{1a,aa,ff}
60	B	15	0	0	15
61	A	15	0	1	14 ^{1a,aa,ff}
61	B	15	0	0	15
62	A	15	0	1	14 ^{1a,aa,ff}
62	B	15	0	0	15

TABLE 28 (Continued)

2.5 mg/L: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
63	A	15	0	1	14 ^{1a,aa,ff}
63	B	15	0	0	15
64	A	15	0	1	14 ^{1a,aa,ff}
64	B	15	0	0	15
65	A	15	0	1	14 ^{1a,aa,ff}
65	B	15	0	0	15
66	A	15	0	1	14 ^{1a,aa,ff}
66	B	15	0	0	15
67	A	15	0	1	14 ^{1a,aa,ff}
67	B	15	0	0	15
68	A	15	0	1	14 ^{1a,aa,ff}
68	B	15	0	0	15
69	A	15	0	1	14 ^{1a,aa,ff}
69	B	15	0	0	15
70	A	15	0	1	14 ^{1a,aa,ff}
70	B	15	0	0	15
71	A	15	0	1	14 ^{1a,aa,ff}
71	B	15	0	0	15
72	A	15	0	1	14 ^{1a,aa,ff}
72	B	15	0	0	15
73	A	15	0	1	14 ^{1a,aa,ff}
73	B	15	0	0	15
74	A	15	0	1	14 ^{1a,aa,ff}
74	B	15	0	0	15
75	A	15	0	1	14 ^{1a,aa,ff}
75	B	15	0	0	15
76	A	15	1	2	13
76	B	15	0	0	15
77	A	15	0	2	13
77	B	15	0	0	15
78	A	15	0	2	13
78	B	15	0	0	15

Company Sanitized. Does not contain TSCA CM

TABLE 28 (Continued)

2.5 mg/L: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
79	A	15	0	2	13
79	B	15	0	0	15
80	A	15	0	2	13
80	B	15	0	0	15
81	A	15	0	2	13
81	B	15	0	0	15
82	A	15	0	2	13
82	B	15	0	0	15
83	A	15	0	2	13
83	B	15	0	0	15
84	A	15	0	2	13
84	B	15	0	0	15
85	A	15	0	2	13
85	B	15	0	0	15
86	A	15	0	2	13
86	B	15	0	0	15
87	A	15	0	2	13
87	B	15	0	0	15
88	A	15	0	2	13
88	B	15	0	0	15
89	A	15	0	2	13
89	B	15	0	0	15
90	A	15	0	2	13
90	B	15	0	0	15

a Scoliosis (includes: curved spine, corkscrew tail, and bent spine/tail)

aa Rapid respiration

ff Lying on bottom of test chamber

Company Sanitized. Does not contain TSCA CBI

TABLE 29

5.0 mg/L: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
46	A	15	0	0	15
46	B	15	0	0	15
47	A	15	0	0	15 ^{1ff}
47	B	15	0	0	15
48	A	15	0	0	15 ^{1ff}
48	B	15	0	0	15
49	A	15	0	0	15 ^{1ff}
49	B	15	0	0	15
50	A	15	0	0	15 ^{1ff}
50	B	15	0	0	15
51	A	15	0	0	15 ^{1h,dd}
51	B	15	0	0	15
52	A	15	0	0	15 ^{1h,aa,ff}
52	B	15	0	0	15
53	A	15	0	0	15 ^{1h,aa,ff}
53	B	15	0	0	15
54	A	15	0	0	15 ^{1h,aa,ff}
54	B	15	0	0	15
55	A	15	0	0	15 ^{1h,aa,ff}
55	B	15	0	0	15
56	A	15	0	0	15 ^{1h,aa,ff}
56	B	15	0	0	15
57	A	15	0	0	15 ^{1h,aa,ff}
57	B	15	0	0	15
58	A	15	0	0	15 ^{1h,aa,ff}
58	B	15	0	0	15
59	A	15	1	1	14
59	B	15	0	0	15
60	A	15	0	1	14
60	B	15	0	0	15
61	A	15	0	1	14
61	B	15	0	0	15
62	A	15	0	1	14
62	B	15	0	0	15

TABLE 29 (Continued)

5.0 mg/L: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
63	A	15	0	1	14
63	B	15	0	0	15
64	A	15	0	1	14
64	B	15	0	0	15
65	A	15	0	1	14
65	B	15	0	0	15
66	A	15	0	1	14
66	B	15	0	0	15
67	A	15	0	1	14
67	B	15	0	0	15
68	A	15	0	1	14
68	B	15	0	0	15
69	A	15	0	1	14
69	B	15	0	0	15
70	A	15	0	1	14
70	B	15	0	0	15
71	A	15	0	1	14
71	B	15	0	0	15
72	A	15	0	1	14
72	B	15	0	0	15
73	A	15	0	1	14
73	B	15	0	0	15
74	A	15	0	1	14
74	B	15	0	0	15
75	A	15	0	1	14
75	B	15	0	0	15
76	A	15	0	1	14
76	B	15	0	0	15
77	A	15	0	1	14
77	B	15	0	0	15
78	A	15	0	1	14
78	B	15	0	0	15

TABLE 29 (Continued)

5.0 mg/L: LARVAL MORTALITY AFTER THINNING FOR THE 90-DAY
RAINBOW TROUT, *Oncorhynchus mykiss*, EARLY LIFE-STAGE TOXICITY TEST

Day	Replicate	Larvae at Transfer	Dead Larvae Removed	Cumulative Dead Larvae	Live Larvae Remaining
79	A	15	0	1	14
79	B	15	0	0	15
80	A	15	0	1	14
80	B	15	0	0	15
81	A	15	0	1	14
81	B	15	0	0	15
82	A	15	0	1	14
82	B	15	0	0	15
83	A	15	0	1	14
83	B	15	0	0	15
84	A	15	0	1	14
84	B	15	0	0	15
85	A	15	0	1	14
85	B	15	0	0	15
86	A	15	0	1	14
86	B	15	0	0	15
87	A	15	0	1	14
87	B	15	0	0	15
88	A	15	0	1	14
88	B	15	0	0	15
89	A	15	0	1	14
89	B	15	0	0	15
90	A	15	0	1	14
90	B	15	0	0	15

h Yolk sac present (not absorbed)

aa Rapid respiration

dd Loss of equilibrium

ff Lying on bottom of test chamber

TABLE 30

DILUTION WATER CONTROL: FISH LENGTHS AND WEIGHTS
AT TEST CONCLUSION FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*,
EARLY LIFE-STAGE TOXICITY TEST

Number	Replicate	Standard Length (cm)	Wet Weight (grams)
1	A	5.0	1.6281
2	A	4.7	1.2671
3	A	4.2	0.9640
4	A	4.6	1.2515
5	A	4.3	1.0650
6	A	4.8	1.3542
7	A	4.8	1.3434
8	A	4.8	1.4075
9	A	4.8	1.3933
10	A	4.9	1.6317
11	A	4.5	1.2217
12	A	4.9	1.3862
13	A	3.8	0.6517
14	A	4.5	1.1362
15	A	4.7	1.4809
1	B	4.2	0.9278
2	B	4.4	1.1217
3	B	4.1	0.9130
4	B	4.3	1.0570
5	B	4.1	0.8420
6	B	4.5	1.2287
7	B	4.1	0.9251
8	B	4.9	1.5613
9	B	4.5	1.0699
10	B	4.7	1.4861
11	B	4.9	1.7046
12	B	4.7	1.3841
13	B	4.5	1.1155
14	B	4.3	1.0424
15	B	4.8	1.6013

Company Sanitized. Does not contain TSCA CB!

TABLE 31

IPA CONTROL: FISH LENGTHS AND WEIGHTS
AT TEST CONCLUSION FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*,
EARLY LIFE-STAGE TOXICITY TEST

Number	Replicate	Standard Length (cm)	Wet Weight (grams)
1	A	4.0	0.7917
2	A	4.1	1.0407
3	A	4.7	1.3784
4	A	4.4	1.2848
5	A	3.9	0.7664
6	A	4.5	1.1646
7	A	4.2	1.0193
8	A	4.3	1.0205
9	A	4.1	0.8548
10	A	4.8	1.5978
11	A	4.8	1.4999
12	A	4.2	0.9730
13	A	4.6	1.4529
14	A	5.0	1.6970
15	A	4.8	1.4693
1	B	4.4	1.2643
2	B	4.7	1.4423
3	B	4.2	1.0702
4	B	4.1	0.8778
5	B	4.0	0.8106
6	B	3.7	0.5888
7	B	3.9	0.7406
8	B	4.3	1.0758
9	B	4.3	0.9563
10	B	4.5	1.1270
11	B	4.6	1.1423
12	B	4.5	1.1291
13	B	4.5	1.2498
14	B	4.7	1.3835
15	B	4.4	0.9923

Company Sanitized. Does not contain TSCA CB1

TABLE 32

0.30 mg/L: FISH LENGTHS AND WEIGHTS
AT TEST CONCLUSION FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*,
EARLY LIFE-STAGE TOXICITY TEST

Number	Replicate	Standard Length (cm)	Wet Weight (grams)
1	A	4.5	1.2727
2	A	4.6	1.2737
3	A	3.9	0.7769
4	A	4.1	0.9947
5	A	5.0	1.7682
6	A	4.7	1.3858
7	A	4.9	1.5973
8	A	3.8	0.6702
9	A	3.8	0.7024
10	A	5.0	1.6720
11	A	4.2	1.1219
12	A	4.7	1.5625
13	A	4.9	1.7257
14	A	5.2	1.7653
15	A	4.0	0.7628
1	B	4.9	1.8952
2	B	4.1	1.0090
3	B	4.7	1.3474
4	B	4.2	1.0847
5	B	4.1	0.9477
6	B	4.8	1.6443
7	B	4.1	0.8719
8	B	3.9	0.7682
9	B	3.8	0.6331
10	B	4.3	1.0042
11	B	5.0	1.6000
12	B	5.0	1.7710
13	B	4.8	1.4707
14	B	4.0	0.8385
15	B	- ^a	- ^a

a Fish died prior to test end

Company Sanitized. Does not contain TSCA CBI

TABLE 33

0.63 mg/L: FISH LENGTHS AND WEIGHTS
AT TEST CONCLUSION FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*,
EARLY LIFE-STAGE TOXICITY TEST

Number	Replicate	Standard Length (cm)	Wet Weight (grams)
1	A	4.1	1.0369
2	A	4.0	0.9292
3	A	4.8	1.5758
4	A	4.8	1.7722
5	A	4.5	1.1733
6	A	4.6	1.5429
7	A	4.7	1.5225
8	A	5.0	1.7625
9	A	4.1	0.8883
10	A	4.0	0.8060
11	A	3.9	0.8629
12	A	4.6	1.5206
13	A	4.2	1.0751
14	A	- ^a	- ^a
15	A	- ^a	- ^a
1	B	4.5	1.2613
2	B	4.9	1.5593
3	B	3.7	0.6215
4	B	3.8	0.7014
5	B	5.0	1.7190
6	B	3.4	0.6475
7	B	4.8	1.4464
8	B	4.3	1.1015
9	B	4.7	1.3918
10	B	4.4	1.0695
11	B	4.9	1.6121
12	B	4.7	1.3789
13	B	4.5	1.3758
14	B	4.0	0.7730
15	B	3.9	0.8766

a Fish died prior to test end

Company Sanitized. Does not contain TSCA CBI

TABLE 34.

1.3 mg/L: FISH LENGTHS AND WEIGHTS
AT TEST CONCLUSION FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*,
EARLY LIFE-STAGE TOXICITY TEST

Number	Replicate	Standard Length (cm)	Wet Weight (grams)
1	A	5.0	1.7466
2	A	4.9	1.1861
3	A	3.9	0.6941
4	A	4.5	1.2027
5	A	3.5	0.5217
6	A	4.5	1.2290
7	A	4.8	1.5022
8	A	4.8	1.3572
9	A	3.6	0.5488
10	A	4.5	1.2535
11	A	3.6	0.6809
12	A	5.1	1.7007
13	A	4.6	1.3366
14	A	4.5	1.0229
15	A	5.0	1.6127
1	B	3.9	0.9927
2	B	4.6	1.3223
3	B	3.8	0.7958
4	B	3.9	1.2228
5	B	4.3	0.9932
6	B	3.5	0.4778
7	B	4.6	1.2850
8	B	4.7	1.2440
9	B	4.5	1.3943
10	B	3.7	0.6192
11	B	3.6	0.6477
12	B	4.5	1.3833
13	B	4.5	1.2095
14	B	4.9	1.6133
15	B	4.8	1.5263

Company Sanitized. Does not contain TSCA CBI

TABLE 35

2.5 mg/L: FISH LENGTHS AND WEIGHTS
AT TEST CONCLUSION FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*,
EARLY LIFE-STAGE TOXICITY TEST

Number	Replicate	Standard Length (cm)	Wet Weight (grams)
1	A	4.9	1.6575
2	A	4.1	0.8647
3	A	4.7	1.5467
4	A	3.5	0.4912
5	A	4.5	1.3753
6	A	3.9	0.7499
7	A	4.6	1.2555
8	A	4.3	0.9677
9	A	5.0	1.7813
10	A	4.7	1.2550
11	A	4.4	1.1513
12	A	4.3	0.9255
13	A	3.9	0.8248
14	A	- ^a	- ^a
15	A	- ^a	- ^a
1	B	4.9	1.5774
2	B	4.2	1.0898
3	B	3.9	0.7435
4	B	3.6	0.5565
5	B	3.9	0.8335
6	B	3.9	0.6569
7	B	4.1	0.7471
8	B	4.6	1.2627
9	B	5.1	1.9099
10	B	3.5	0.5225
11	B	3.7	0.6235
12	B	4.6	1.3092
13	B	5.0	0.9864
14	B	3.5	0.5731
15	B	5.0	1.6540

a Fish died prior to test end

Company Sanitized. Does not contain TSCA CBI

TABLE 36

5.0 mg/L: FISH LENGTHS AND WEIGHTS
AT TEST CONCLUSION FOR THE 90-DAY RAINBOW TROUT, *Oncorhynchus mykiss*,
EARLY LIFE-STAGE TOXICITY TEST

Number	Replicate	Standard Length (cm)	Wet Weight (grams)
1	A	4.7	1.3881
2	A	4.1	0.8751
3	A	4.7	1.3667
4	A	4.6	1.1537
5	A	4.3	1.0605
6	A	4.5	1.1634
7	A	4.5	1.2005
8	A	4.6	1.2882
9	A	4.6	1.3625
10	A	4.7	1.3692
11	A	4.4	1.3012
12	A	4.5	1.4060
13	A	4.0	0.8065
14	A	4.6	1.3488
15	A	- ^a	- ^a
1	B	4.2	0.9436
2	B	4.5	1.2183
3	B	4.1	1.1129
4	B	3.5	0.5063
5	B	4.1	0.9804
6	B	3.7	0.7074
7	B	4.0	0.8737
8	B	3.5	0.5591
9	B	4.7	1.3672
10	B	4.3	1.1058
11	B	4.9	1.4207
12	B	4.2	1.0398
13	B	5.0	1.8293
14	B	3.7	0.5741
15	B	4.5	1.2472

a Fish died prior to test end

Company Sanitized. Does not contain TSCA CBI

TABLE 37
SUMMARY TABLE OF STATISTICAL ENDPOINTS

ENDPOINT	NOEC (mg/L)	MATC (mg/L)	LOEC (mg/L)	EC ₅₀ (mg/L)	STATISTICAL TESTS	COMMENT
Egg hatching	> 5.0	> 5.0	> 5.0	*	Cochran-Armitage	Only one abnormality Exact Analysis Exact Analysis Exact Analysis
Larval survival @ thinning	> 5.0	> 5.0	> 5.0	*	Cochran-Armitage	
Larval abnormality @ thinning	> 5.0	> 5.0	> 5.0	*	Cochran-Armitage	
Larval survival @ test end	> 5.0	> 5.0	> 5.0	*	Cochran-Armitage	
Larval abnormality @ test end	> 5.0	> 5.0	> 5.0	*	Cochran-Armitage	
First day of hatching	> 5.0	> 5.0	> 5.0	*	Jonckheere-Terpstra	
Last day of hatching	1.3	1.8	2.5	*	Jonckheere-Terpstra	
First day of swimup	1.3	1.8	2.5	*	Jonckheere-Terpstra	
Length	> 5.0	> 5.0	> 5.0	*	Jonckheere-Terpstra	
Weight	> 5.0	> 5.0	> 5.0	*	Jonckheere-Terpstra	

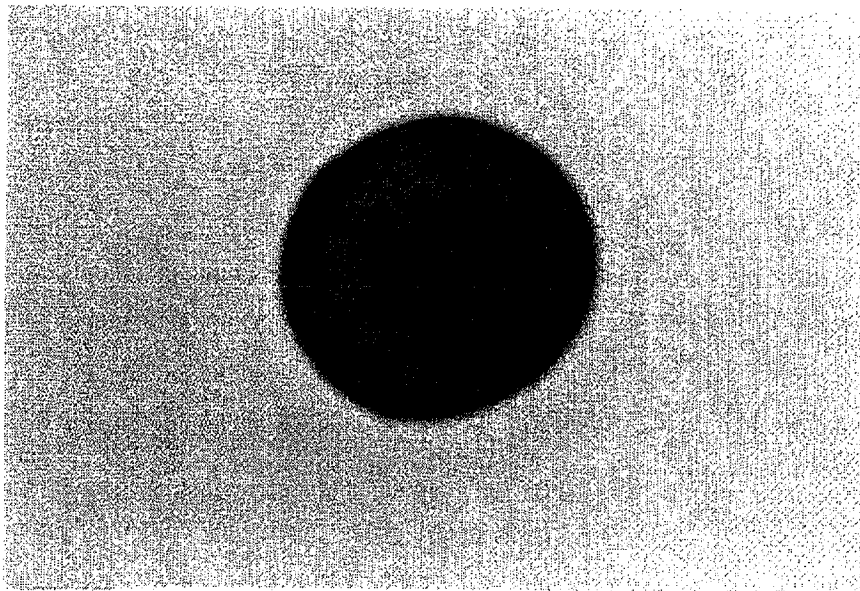
* Not calculated/could not be adequately determined

FIGURES

Company Sanitized. Does not contain TSCA CRI

FIGURE 1.

PHOTOGRAPH OF AN EMBRYO AT APPROXIMATELY 22-HOURS
POST-FERTILIZATION

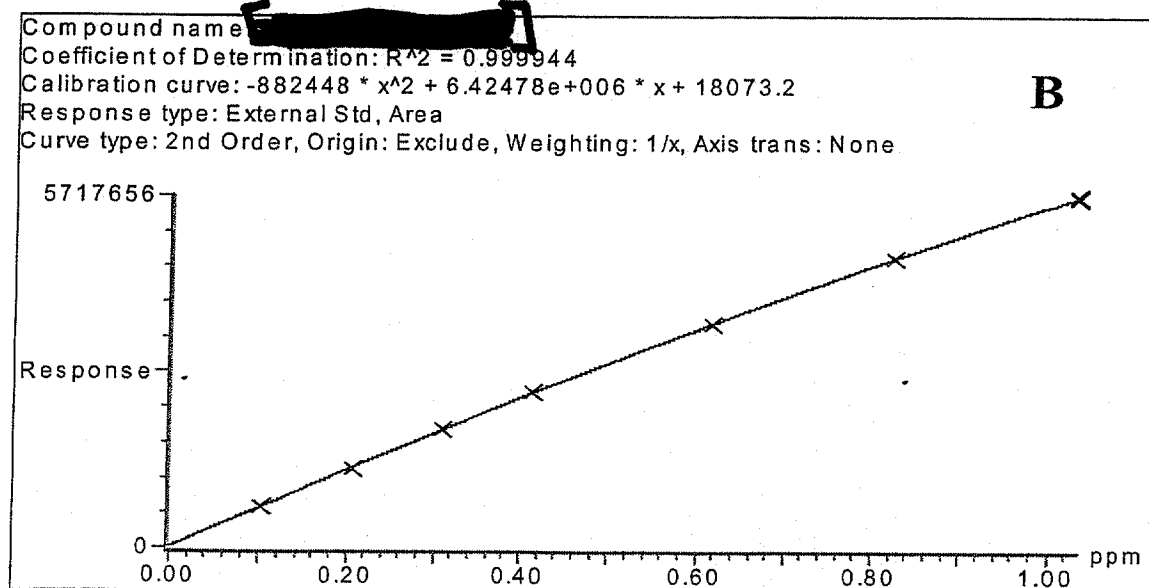
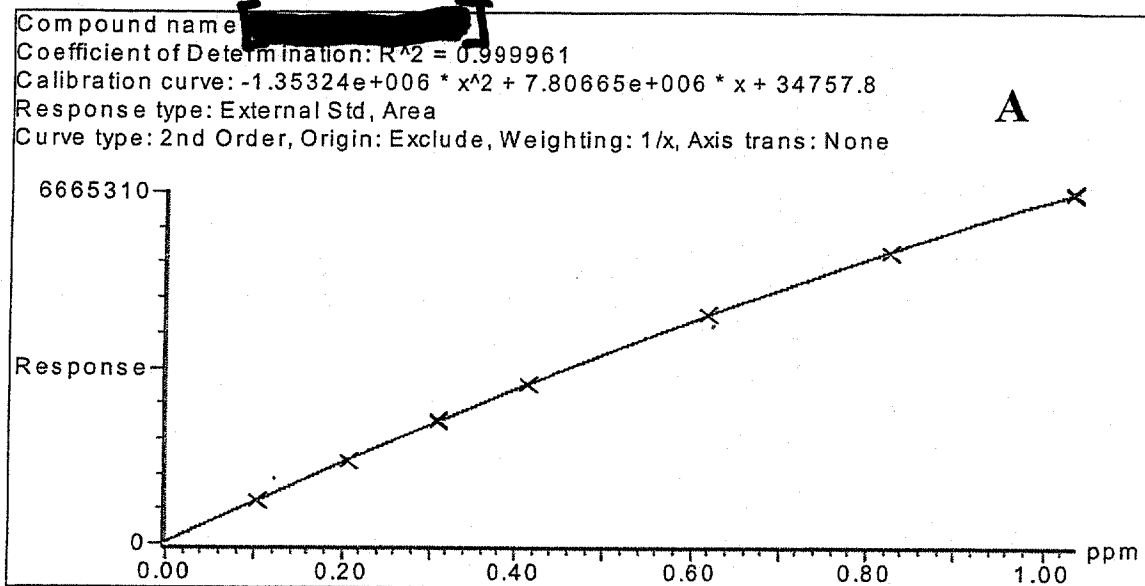


Company Sanitized. Does not contain TSCA CBI

FIGURE 2

REPRESENTATIVE ANALYTICAL CALIBRATION STANDARD CURVE FOR H-25436:

A: [REDACTED]
B: [REDACTED]
C: [REDACTED]

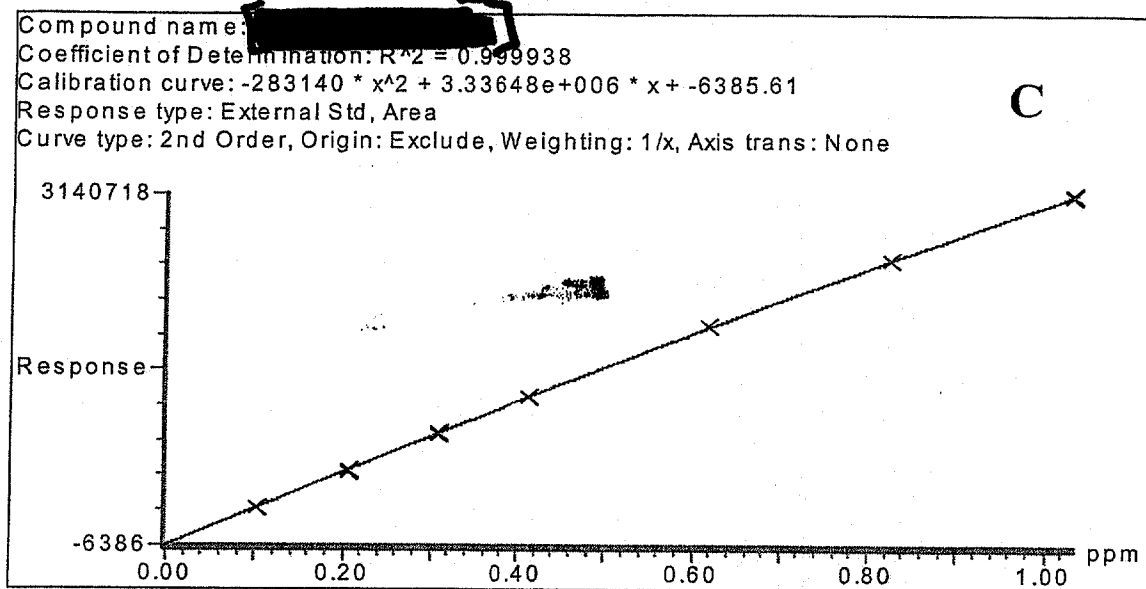


Company Sanitized. Does not contain TSCA CBI

FIGURE 2 (Continued)

REPRESENTATIVE ANALYTICAL CALIBRATION STANDARD CURVE FOR H-25436:

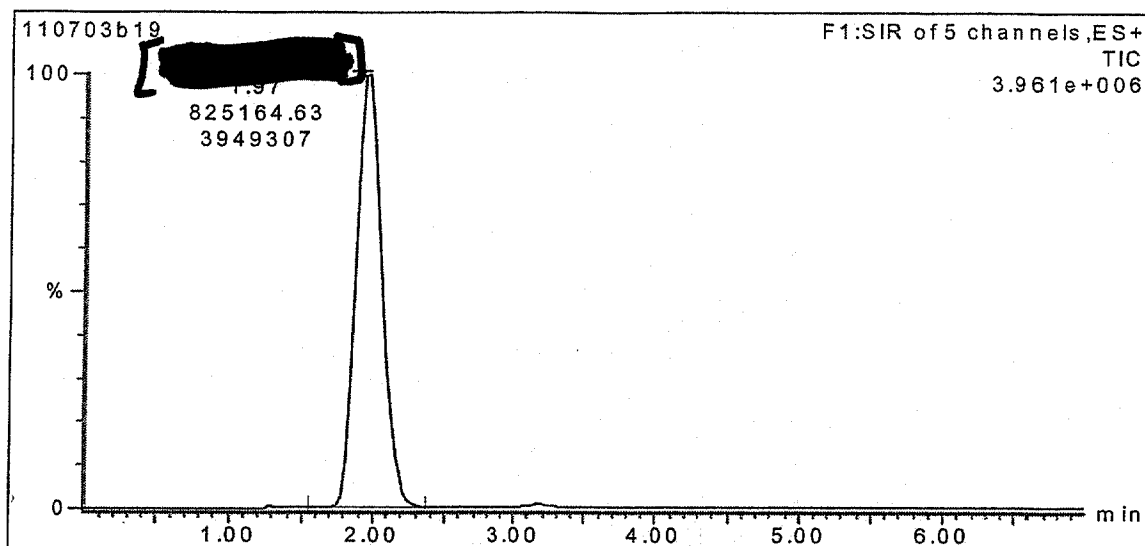
A: [REDACTED]
B: [REDACTED]
C: [REDACTED]



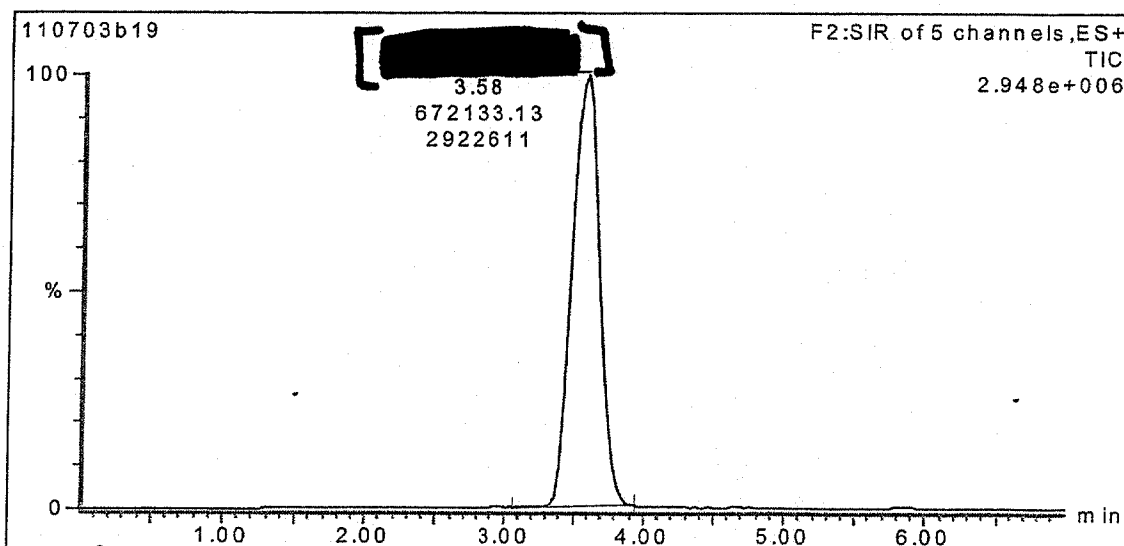
Company Sanitized. Does not contain TSCA CBI

FIGURE 3

REPRESENTATIVE HPLC CHROMATOGRAM OF A
CALIBRATION STANDARD SOLUTION



[REDACTED] elute at a retention time of approximately 1.97 minutes. Calibration standard solution contains H-25436 at a concentration of 0.103 mg/L.

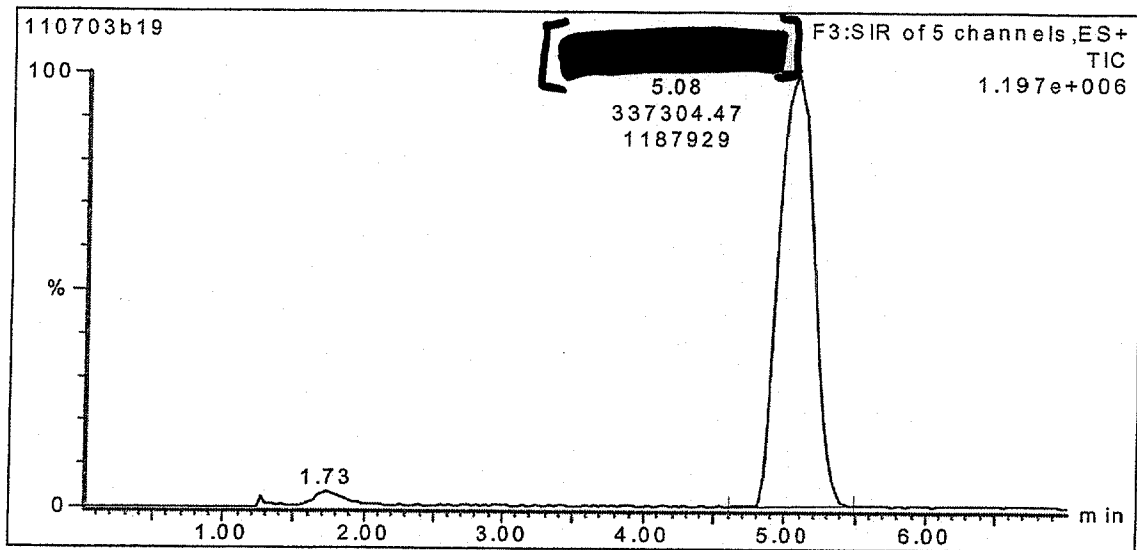


[REDACTED] elute at a retention time of approximately 3.58 minutes. Calibration standard solution contains H-25436 at a concentration of 0.103 mg/L.

Company Sanitized. Does not contain TSCA C.P.

FIGURE 3 (Continued)

REPRESENTATIVE HPLC CHROMATOGRAM OF A
CALIBRATION STANDARD SOLUTION

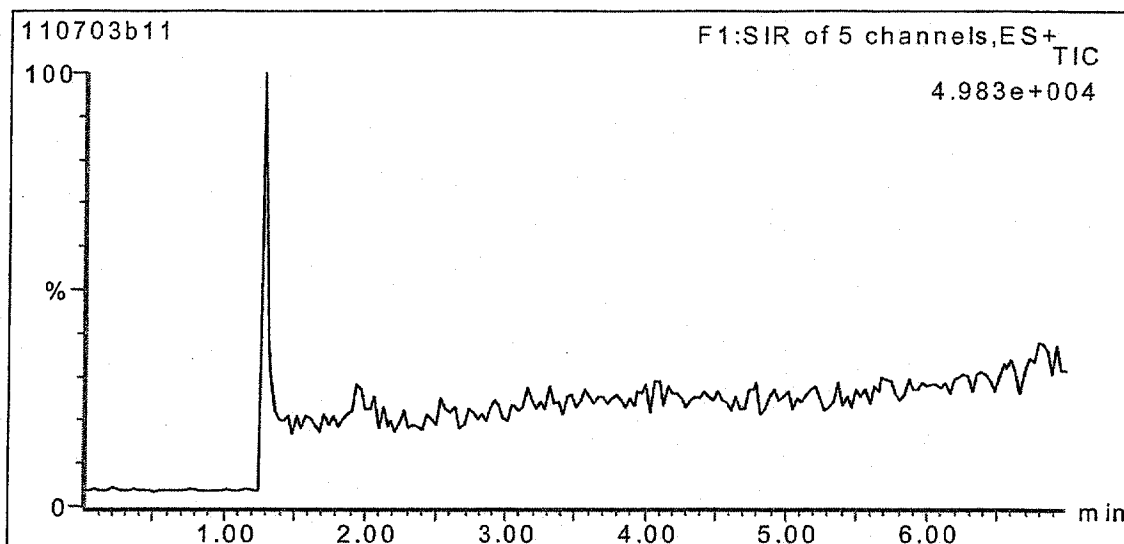


[REDACTED] elute at a retention time of approximately 5.08 minutes. Calibration standard solution contains H-25436 at a concentration of 0.103 mg/L.

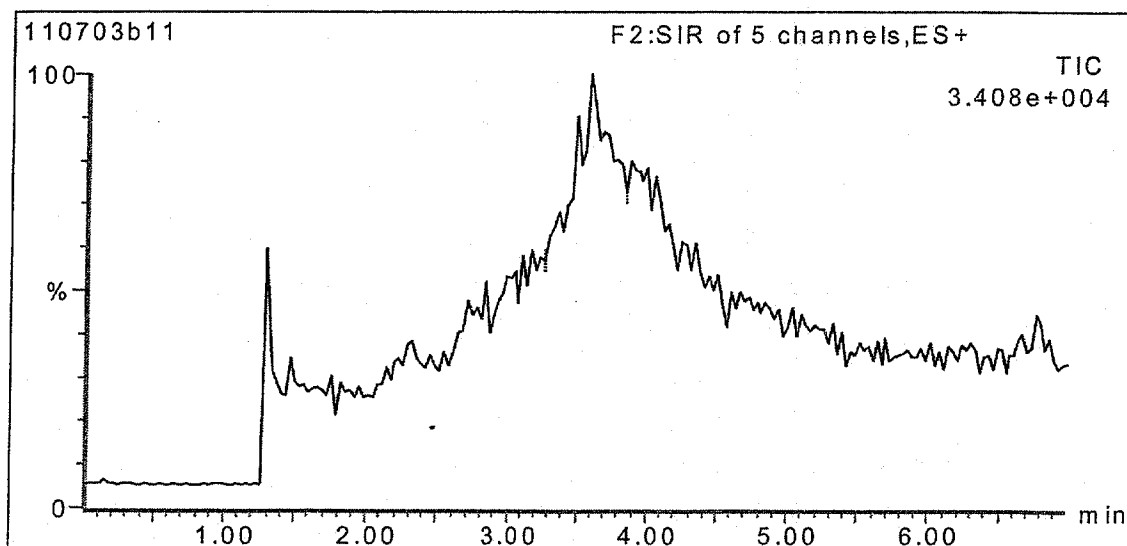
Company Sanitized. Does not contain TSCA CBI

FIGURE 4

REPRESENTATIVE HPLC CHROMATOGRAM OF A
DILUTION WATER CONTROL SOLUTION



[REDACTED] would elute at a retention time of approximately 1.97 minutes.

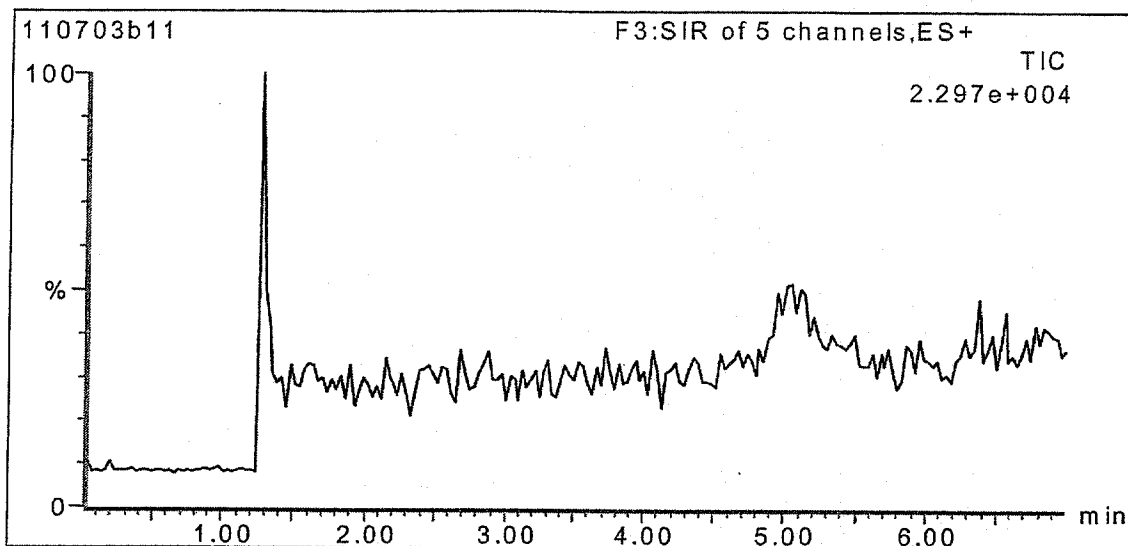


[REDACTED] would elute at a retention time of approximately 3.58 minutes.

Company Sanitized. Does not contain TSCA CBI

FIGURE 4 (Continued)

REPRESENTATIVE HPLC CHROMATOGRAM OF A
DILUTION WATER CONTROL SOLUTION

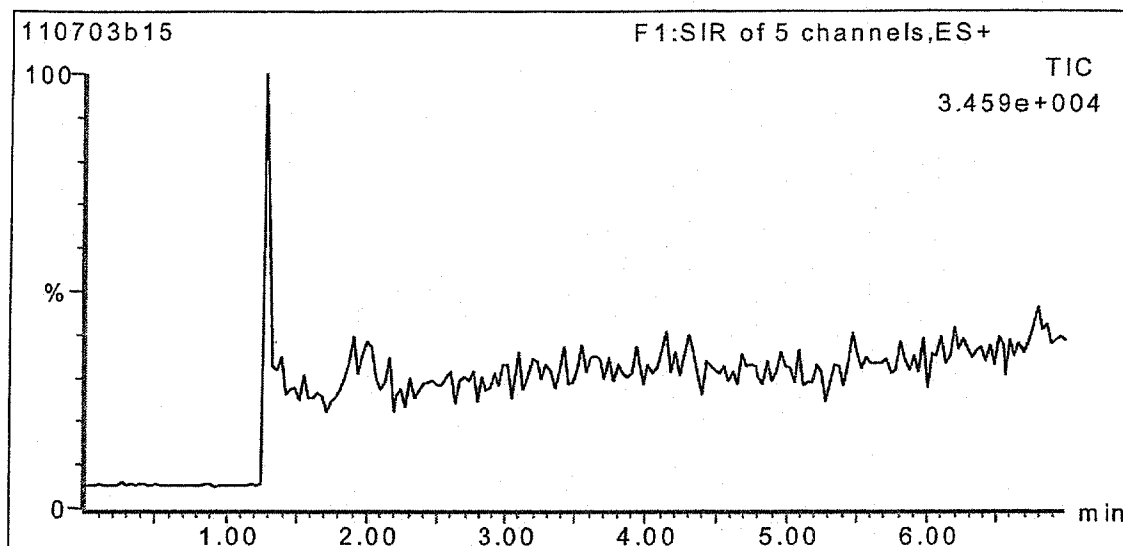


[REDACTED] would elute at a retention time of approximately 5.08 minutes.

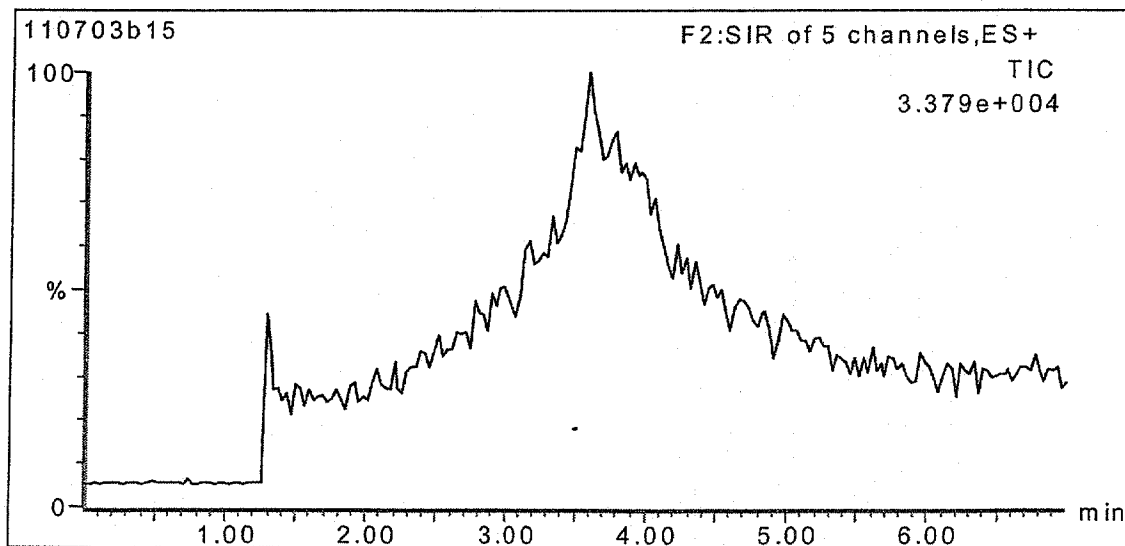
Company Sanitized. Does not contain TSCA CBI

FIGURE 5

REPRESENTATIVE HPLC CHROMATOGRAM OF A
IPA WATER CONTROL SOLUTION



[REDACTED] would elute at a retention time of approximately 1.97 minutes.

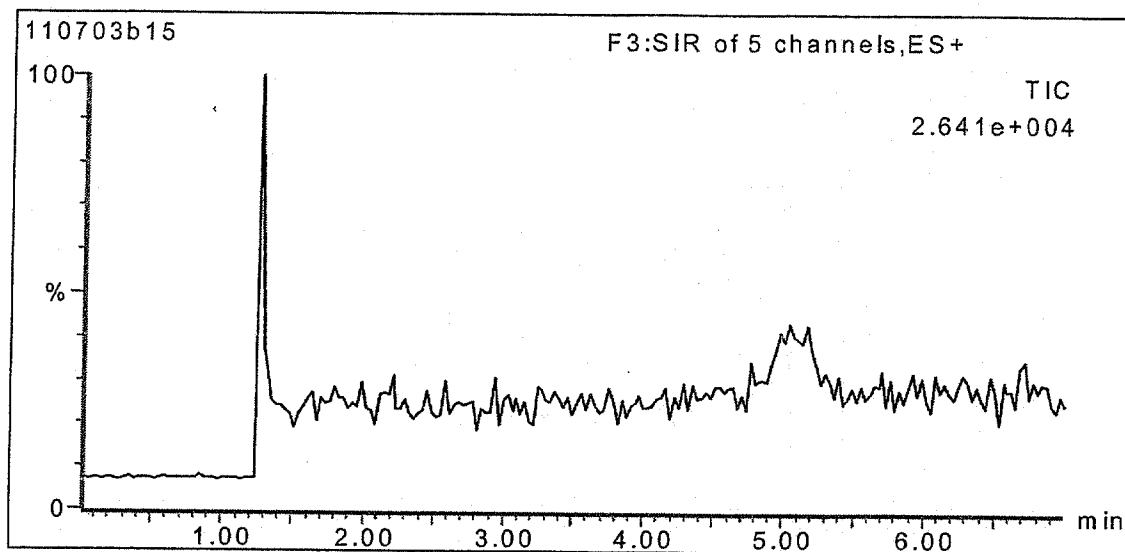


[REDACTED] would elute at a retention time of approximately 3.58 minutes.

Company Sanitized. Does not contain TSCA CB

FIGURE 5 (Continued)

REPRESENTATIVE HPLC CHROMATOGRAM OF A
IPA WATER CONTROL SOLUTION

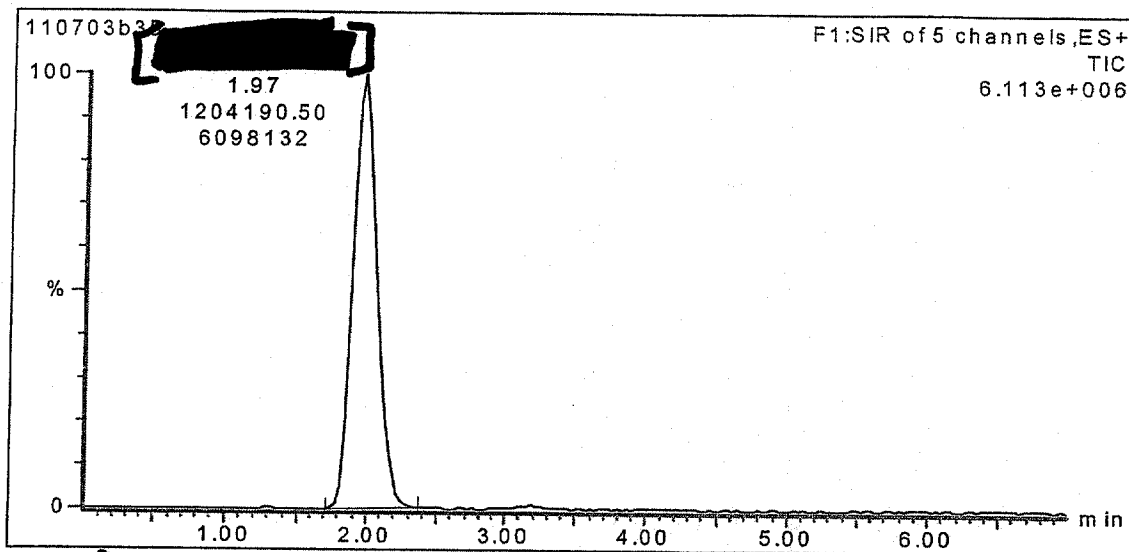


[REDACTED] would elute at a retention time of approximately 5.08 minutes.

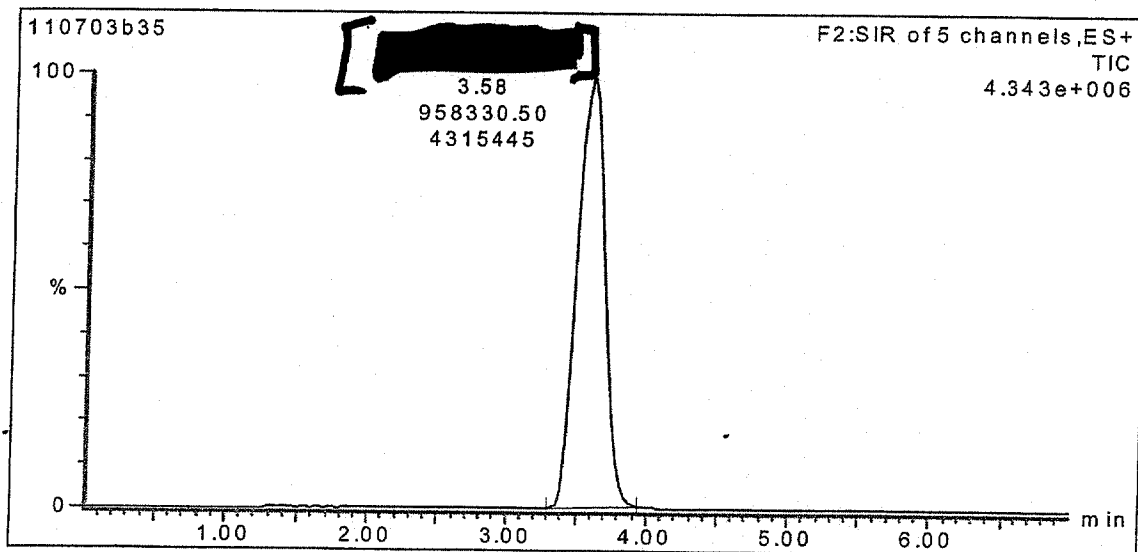
Company Sanitized. Does not contain TSCA

FIGURE 6

REPRESENTATIVE HPLC CHROMATOGRAM OF A H-25436 TEST SOLUTION



[REDACTED] elute at a retention time of approximately 1.97 minutes. Test solution sample contains H-25436 at a nominal concentration of 0.3 mg/L.

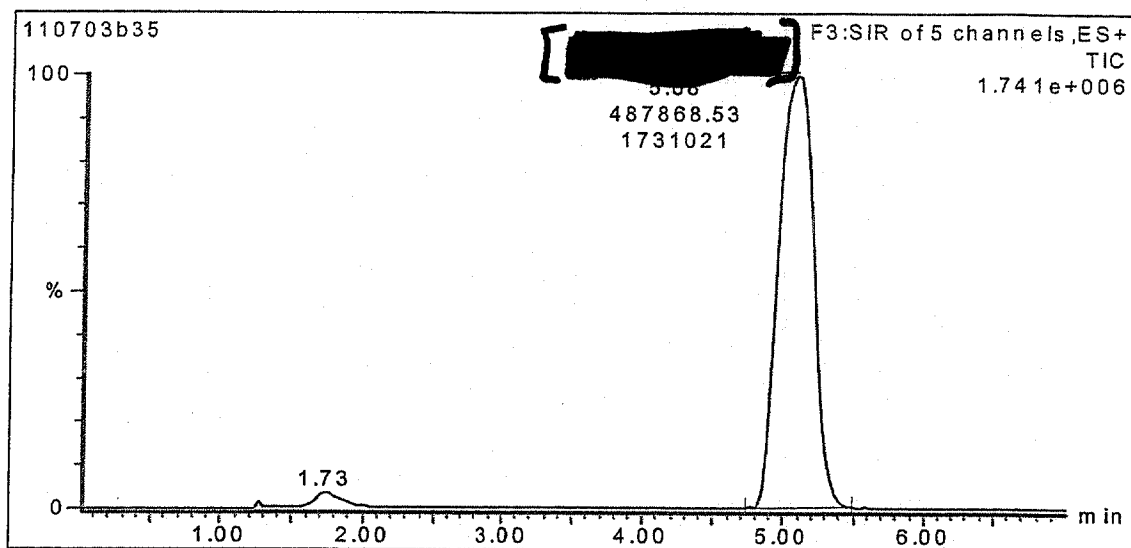


[REDACTED] elute at a retention time of approximately 3.58 minutes. Test solution sample contains H-25436 at a nominal concentration of 0.3 mg/L.

Company Sanitized. Does not contain TSCA

FIGURE 6 (Continued)

REPRESENTATIVE HPLC CHROMATOGRAM OF A H-25436 TEST SOLUTION



[REDACTED] elute at a retention time of approximately 5.08 minutes. Test solution sample contains H-25436 at a nominal concentration of 0.3 mg/L.

Company Sanitized. Does not contain TSCA C-

APPENDIX

Company Sanitized. Does not contain TSCA r

APPENDIX A

Certificate of Analyses

~~Company~~ Sanitized. Does not contain TSCA info.

~~Company~~ Sanitized. Does not contain TSCA info.

DuPont Specialty Chemicals
Jackson Laboratory
Regional Analytical Services
Warrington, DE 19380



DuPont Specialty Chemicals

7/8/04
Date

Company

Attention:

Sharon Cattie

CERTIFICATE OF ANALYSIS

[REDACTED]
Product Code [REDACTED]
Customer Order # [REDACTED]
DuPont Order # BXPM
Total Weight, Lb.

Analysis

Specifications
(2-14-97)

Results
Lot [REDACTED] Lot [REDACTED]
1.936
22.6

Weight, lb.
Density @ 65°C
Surface Tension
Appearance

1.312 to 1.335
23.0 Max.

Paste

Pass

Sharon Severy
Approved by
Regional Analytical Services

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Company Sanitized. Does not contain TSCA CBI

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