

AR226-0120

EnviroSystems Study Number 90171-3

RESOURCE ANALYSTS, INCORPORATED
ENVIROSYSTEMS DIVISION

PRODUCT REGISTRATION LABORATORY
AQUATIC TOXICOLOGY STUDY PROTOCOL

Static Acute Toxicity Test With FM 3820
And The Daphnid, *Daphnia magna*

Sponsor

3M Company
PO Box 33428
St. Paul, Minnesota 55133

Sponsor Approval of Protocol

Amos A. Beach

Date 11/8/90

Testing Facility

EnviroSystems Division
Resource Analysts, Inc.
1 Lafayette Road
Hampton, NH 03842

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Estimated Test Initiation Date: October, 1990

Estimated Test Completion Date: December, 1990

Study Director: Timothy J. Ward

Study Director Approval of Protocol

Timothy J. Ward

Date 11/14/90

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SIGNATURE CAB DATE 3/2/91
61 pages

1.0 TITLE

Static Acute Toxicity Test With FM 3820 And The Daphnid, *Daphnia magna*

2.0 PURPOSE

To determine the 24 hour and 48 hour median effective concentrations (EC50s) of the test substance to the daphnid, when exposed for 48 hours under static conditions.

3.0 TEST MATERIAL

3.1 The test substance and related stability and purity data will be supplied by the sponsor. Test material will be stored at room temperature in the original shipping container unless alternate storage conditions are requested by the sponsor. Handling of the test material will be in accordance with information contained in the sponsor-supplied Material Safety Data Sheet and RAI Standard Operating Procedure 01-02-1106. A subsample of test substance (approximately 1 gram) will be removed from the original container and transferred to a glass vial for archiving. All unused test substance will be returned to the sponsor.

3.2 Calculations are based on nominal concentrations of the test substance. Test substance stock solutions are prepared in deionized or dilution water without the use of a solvent (carrier) if possible. If a solvent is required, dimethylformamide, triethylene glycol, or acetone will be used. The concentration of solvent will be limited to 100 mg/L.

4.0 TEST SPECIES

4.1 The selection of test species is determined by the sponsor. Healthy juveniles (free from known diseases) from a single source will be used to initiate the test. They will be obtained from an in-house culture with a known history and will be less than 24 hours old at the initiation of the test. The wet weight of control organisms will be determined at the end of the test.

4.2 Identification of the test animals shall be verified using appropriate taxonomic keys.

5.0 PRETEST OBSERVATIONS AND PROCEDURES

5.1 Pretest observation data concerning the source, handling procedures, receipt date, disease treatment (if any), health, feeding, and mortality of test animals will be recorded and reported.

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5.2 Daphnids will be maintained under static or replacement conditions prior to test initiation in the same water and at the same photoperiod and temperature that will be used for testing. The animals will be fed at least once daily with a mixture of yeast, trout chow, and cerophyl and/or freshwater algae. Daphnid cultures will be maintained in dilution water at test conditions (temperature, hardness, and photoperiod) for at least 14 days prior to testing.

6.0 EXPOSURE CONDITIONS

6.1 The test will be conducted under static conditions, and test media will be supplied only at the beginning of the test.

6.2 Dilution water will be natural ground water. It will be free of measurable concentrations of pesticides. Water will be passed through a <20 micron filter and chemically characterized (at least twice yearly analysis at RAI) prior to use.

6.3 Water temperature will be $20 \pm 1^{\circ}\text{C}$.

6.4 Dissolved oxygen concentration should be above 70% saturation, but aeration will not be utilized.

6.5 Photoperiod will be automatically controlled and adjusted to 16 hours light and 8 hours dark.

6.6 The test vessels will be 250 ml beakers of that contain 200 ml of test media. The loading rate will be less than 0.5 g/L.

7.0 STUDY CONDUCT

7.1 The results of a range finding investigation and/or previous testing data will be used to select the concentration range for the definitive test. If a range finding test is conducted animals will be exposed to a series of concentrations of test substance plus a control and a solvent control (if required).

7.2 During the definitive test the animals will be exposed for 48 hours to at least five concentrations of test substance plus a control (dilution water without test substance) and a solvent control (if necessary) under static conditions. Test concentrations will be chosen to bracket the anticipated EC50.

7.3 At least 20 animals will be exposed to each treatment. The animals will be exposed in groups of 5 animals per vessel (4 replicates per concentration), each containing 200 ml of solution. The animals will be assigned to randomly positioned test vessels (a random numbers table will be used to choose the position of each test vessel), and they will not be fed.

7.4 Animals will be added to test media after test substance has been added and aeration will not be employed.

7.5 The highest tested concentration will be 1,000 mg/L.

7.6 A toxicity test shall also be conducted with a reference toxicant and the batch of daphnids used for the test.

7.7 Dissolved oxygen concentration, pH, temperature, and conductivity will be measured and recorded at the beginning of the test and daily thereafter in all test vessels, as long as living animals are present in those vessels.

7.8 Mortality and sublethal effects (immobilization) will be recorded at 24 hour intervals during the test. Dead animals will be removed.

7.9 Data Analysis and Statistical Methods

7.9.1 The EC50 values and their 95% confidence intervals will be calculated using mortality and/or immobilization data by the binomial, moving average or probit methods.

8.0 QUALITY ASSURANCE AND QUALITY CONTROL

8.1 The test will be repeated if any of the following conditions occur:

8.1.1 Control survival at the end of the test is less than 90%, or more than 10% of the control daphnids are stressed or immobilized, or any control animals are trapped at the surface.

8.1.2 Temperature in any test vessel is outside of the range of 19 - 21°C.

8.2 The test will be conducted according to OECD Good Laboratory Practice Standards.

8.3 The test will be audited by the Quality Assurance Unit.

8.4 The Study Director will be responsible for reviewing all data and for recording any changes to procedures outlined in this protocol in a protocol amendment. Protocol amendments will be approved by the sponsor.

8.5 Original data will be archived at Resource Analysts Inc. for at least 10 years or it will be transferred to the sponsor for archiving.

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9.0 REPORT

9.1 An original report will be prepared after review of a draft report by the sponsor. The final report will be signed by the Study Director and staff that conducted the study and prepared the report, and by the Quality Assurance Unit Representative.

9.2 The final report will consist of at least the following information:

- 9.2.1 Title page, including the study title, data requirement, author, study completion date, testing facility, and sponsor.
- 9.2.2 Sponsor-supplied confidentiality claims.
- 9.2.3 Good Laboratory Practice Statement.
- 9.2.4 Certification of Good Laboratory Practices.
- 9.2.5 Table of Contents.
- 9.2.6 Summary of test procedures and results.
- 9.2.7 Introduction.
- 9.2.8 Methods and Materials, including a description of test methods, organisms, dilution water, and statistical techniques.
- 9.2.9 Results, including all data from range-finding and definitive tests, and EC50 values.
- 9.2.10 References.
- 9.2.11 Appendices, including all water quality data.

10.0 REFERENCES

- OECD. 1984. OECD Guidelines for Testing of Chemicals. Section 2: Effects on Biotic Systems. Method 202, Daphnia sp., Acute Immobilisation Test and Reproduction Test. Adopted 4 April 1984.
- U.S. EPA. 1986. 40 CFR Part 797. Toxic Substances Control Act Test Guidelines; Final Rules. Federal Register, Monday, January 6, 1986. Section 797.1300.
- U.S. EPA. 1987. 40 CFR Part 797. Toxic Substances Control Act Test Guidelines; Amendments. Federal Register, Wednesday, May 20, 1987. Section 797.1300.

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SUMMARY OF TEST CONDITIONS

Acceptable Species:	<i>Daphnia magna</i>
Test Type:	Static
Test Duration:	48 Hours
Flow Rate:	Not Applicable
Dilution Water:	Natural Ground Water
Age/Size of Test Organisms:	Juveniles; Less Than 24 Hours Old
Acclimation Period:	Continuous
Temperature:	20 ± 1°C
Photoperiod:	16 Hours Light/8 Hours Dark
Light Intensity:	Ambient Laboratory Lighting
Number of Concentrations:	5 or More; less than 1,000 mg/L
Dilution Factor:	≤1.6
Number of Replicates:	4 or More
Number of Organisms/Replicate:	5
Test Vessel Size:	250 ml or larger
Test Vessel Volume:	200 ml or more
Solvent:	Dimethylformamide, Acetone, or Triethylene Glycol. Less than or equal to 100 mg/L
Loading Rate:	<0.5 g/L
Feeding:	None During Exposure
Aeration:	None
Effects Measured:	Death; Immobilization
Test Concentration Analysis:	None
Water Quality Measurements:	DO, pH, Temperature and Conductivity at 0, 24, and 48 Hours
Acceptability Criteria:	≤10% Control Mortality, Stress, or Immobilization Acceptable Temperature Range

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PRODUCT REGISTRATION LABORATORY SAMPLE RECEIVING LOG

1. RAI Sample Number 2696E
2. Sponsor Name and Address 3M Env. lab
Bldg. 2-3E-09, 935 Bush Ave.
St. Paul, MN 55106
3. Sponsor Sample Identification H 2864-6 FM 3820
4. Sample Container Label Data H 2864-6 FM 3820
5. Date Received 11-15-90 6. Date Photographed _____
7. Method of Shipment Shipped From St. Paul MN
Via Fedex Weekday
8. Description of Shipping Container(s) 1 plastic cooler
(Number, Type, Size)
9. Description of Sample Containers(s) 1 250 ml glass bottle
(Number, Type, Size)
10. Sample Storage Location and Required Storage Conditions prc-15 Room temp
11. Signature Peter Kowalski Date 11-16-90
12. Notes _____
12-3-90
13. Date and Location of Archive Sample Removal and Storage Location _____
11-16-90 prc-15

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PRODUCT REGISTRATION LABORATORY TEST SUBSTANCE USAGE LOG

RAI SAMPLE NUMBER 2696E TEST SUBSTANCE FM 3820

ALL WEIGHTS ARE MEASURED IN GRAMS

DATE	INITIAL GROSS WEIGHT	FINAL GROSS WEIGHT	AMOUNT REMOVED	DISPOSITION	BY
11-16-90	453.2 g	452.2	1.0	Archive	PK
12-5-90	452.0g	450.8	1.2	90171-3	ES
12-18-90	450.8g	449.8	1.0	90171-3	ES
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SIGNATURE <u>Sm</u>				DATE <u>01-03-91</u>	

Sample Description: pale yellow liquid

Container Label Information:

H 2864-6 FM 3820

Date Received:

11-15-90

Date Of Return To Sponsor:

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 SIGNATURE sm DATE 01-03-91

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p18/2

PRODUCT REGISTRATION LABORATORY ORGANISM ACCLIMATION LOG

Species: d. magna Lot No. 1128901
from lot 1107901

Day of Month	Number of Dead	Food	Feeding Frequency	°C	D.O. (mg/L)	Sal. (ppt)	Notes	By/Date
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28	0	4.5	1x	19.8	NA	NA		ES 11-28-90
29	0	4	1x	20.1	NA	NA		ES 11-29-90
30	0	4	1x	19.3	NA	NA		ES 11-30-90
31								

PROCUREMENT DATA: Age <24 hr Condition good Date 11/28/90
 Source, Collection and/or Transportation Method: from 1107901, original culture from ARD 1219891

Number Procured: _____ Notes: photoperiod on 0600, off 2200

WATER QUALITY: D.O. pH Temp. Salinity Conductivity
mg/L — °C ppt umho/cm

At Shipping: _____

At Arrival: _____

ACCLIMATION DATA: Water

Source natural ground water, 160-180 mg/L

Food and Lot Sagittaria 4-yr old (brow)

Note: Include any observation of disease or abnormal behavior. Use additional sheets if necessary.

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PRODUCT REGISTRATION LABORATORY ORGANISM ACCLIMATION LOG

Species: L. magna Lot No. 1128461
from lot 1107461

Day of Month	Number of Dead	Food	Feeding Frequency	°C	D.O. (mg/L)	Sal. (ppt)	Notes	By/Date
1	0	YS	1x	19.9	/	NA		ES 12-1-90
2	0	Y	1x	19.8	/	NA		ES 12-2-90
3	0	YS	1x	19.8	/	NA		ES 12-3-90
4	0	Y	1x	20.2	/	NA		ES 12-4-90
5	0	YS	1x	20.16	/	NA	Yamaguchi	ES 12-5-90
6	0	YS	1x	19.8	/	NA		ES 12-6-90
7	0	Y	N	20.0	/	NA		Qm 12-7-90
8	0	Y	1x	20.1	/	NA		PK 12-8-90
9	0	Y	1x	20.0	/	NA		PK 12-9-90
10	0	YS	1x	19.9	/	NA		ES 12-10-90
11	0	Y	1x	19.6	/	NA		ES 12-11-90
12	0	YS	1x	20.2	/	NA		ES 12-12-90
13	0	YS	1x	19.0	/	NA		ES 12-13-90
14	0	Y	1x	19.9	/	NA		ES 12-14-90
15	0	Y	N	20.5	/	NA		Qm 12-15-90
16	0	Y	N	20.8	/	NA		Qm 12-16-90
17	0	YS	1x	19.8	/	NA		ES 12-17-90
18	0	YS	1x	19.0	/	NA		ES 12-18-90
19		Y						Qm 12-19-90
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								

* transferred

PROCUREMENT DATA: Age _____ Condition _____ Date _____
 Source, Collection and/or Transportation Method: _____

Number Procured: _____ Notes: _____

WATER QUALITY: D.O. pH Temp. Salinity Conductivity
 mg/L °C ppt unho/cm

At Shipping: _____
 At Arrival: _____

ACCLIMATION DATA: Water

Source _____
 Food and Lot _____

Note: Include any observation of disease or abnormal behavior. Use additional sheets if necessary.

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Resource Analysts, Inc./ EnviroSystems Division
Product Registration Laboratory Raw Data

Study Number 90171-3 Sample Number 246E
Test Substance FM 3820 Test Type: screen ☒ definitive ☐

TEST CONDITIONS

Date 12/5/90 Recorded By P. Heyerd
 Test Organism D. magna Lot Number 120590
 Test Duration 48 hr. Flow Rate NA - static
 Dilution Water natural pond water Salinity/ Hardness 140-180 mg/l
 Age and Size of Test Organisms juveniles; 24 hr.
 Test Organism Abnormalities, Illness, or Injuries: none ☒ some (note) _____
 Acclimation Period (length at test initiation in days) NA
 Temperature 20 ± 1 Incubator Number 12
 Photoperiod: time on 0600 time off 2200 Light Intensity 26 uEin
 15 Minute Transition Period: Yes _____ No ☒
 Number of Concentrations 5 + control
 Dilution Factor ≤ 1.6
 Number of Replicates 2
 Number of Organisms per Replicate 5
 Test Vessel Size (L) .250 Test Solution Volume (L) .200
 Test Solution Depth (cm) 6
 Solvent and Solvent Concentration none
 Loading Rate on 14/90 ≤ 0.5 g/l
 Feeding none
 Dissolved Oxygen Levels > 70%
 Effect(s) Measured death; immobilization
 Test Concentration Analysis none
 Water Quality Measurements DO, pH, temp & cond. at 24, 48, 72 hr.
 Reviewed TW 2/2

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Resource Analysts, Inc./ EnviroSystems Division
Product Registration Laboratory Raw Data

Study Number 90194-3

Sample Number 2696E
2699E (12/12/90)

Test Substance FC-203

Test Type: screen ☒ definitive

STOCK SOLUTION PREPARATION

Percent active ingredient (% AI) 140%

Nominal Concentrations corrected for % AI? yes ☒ no ☐

Balanced Used for Stock Solution Preparation PRE-1

Preparation Notes:

A 1000 ml stock was made. 1.0 g of toxicant
was weighed and brought up to 1000 ml with
dilution water. Stock was mixed and used
as follows:

conc (mg/l)	mls of stock up to 200 mls with dilution water
0	0
.1	.02
1.0	0.2
10	2
100	20
1000	200

Reviewed TW 2/1/91

Recorded by: E. Stanford

Date 12-5-90

Source: Methyl PC Section of Methyl

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Resource Analysts, Inc./ EnviroSystems Division
Product Registration Laboratory Raw Data

Study Number 90171-3 Sample Number 2690E
Test Substance FM 3820 Test Type: screen ☒ definitive ☐

GENERAL INFORMATION

Notes:

Reviewed JW 2/2/91

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Resource Analysts, Inc./ EnviroSystems Division
Product Registration Laboratory Raw Data

Study Number 96171-3 Sample Number 2696E
Test Substance FR 3820 Test Type: screen ☒ definitive ☐

DAPHNID SOLUBILITY

Initiation Date 12-5-90 Test Organism d magna

Test Vessel I.D.	Insoluble Material		
	0 hr	24 hr	48 hr
Control	0	0	0
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
Recorded by	gm	ES	PK
Date:	12-5-90	12-6-90	12-7-90

If no insoluble material is observed enter a zero in the appropriate box.
If insoluble material is observed enter a check mark in the appropriate box and describe the observation below.

Notes: _____

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Revised / TW 2/2/91

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Product Registration Laboratory Raw Data

Study Number 96171-3 Sample Number 2696E

Test Substance FA 3820 Test Type: screen 1 definitive

DAPHNID SURVIVAL AND SUBLETHAL EFFECTS

Page 1 of 2

Initiation Date 12-5-90 Test Organism D. magna

Test Vessel I.D.	Rep.	Number of Live Daphnids			Sublethal effects		
		0 hr	24 hr	48 hr	0 hr	24 hr	48 hr
Control	1	5	5	5	0	0	0
	2	5	5	5	0	0	0
1	1	5	5	5	0	0	0
	2	5	5	5	0	0	0
2	1	5	5	5	0	0	0
	2	5	5	5	0	0	0
3	1	5	5	4	0	0	1
	2	5	5	5	0	0	0
4	1	5	5	3	0	5	3
	2	5	5	3	0	5	3
5	1	5	0	—	0	0	—
	2	5	0	—	0	0	—
	1	/	/	/	/	/	/
	2	/	/	/	/	/	/
Recorded by:		OJA	ES	PK	ES	ES	PK
Date:		12-5-90	12-6-90	12-7-90	12-5-90	12-6-90	12-7-90

If no sublethal effects are observed enter zero in the appropriate box. If sublethal effects are observed enter the number effected in the appropriate box and describe the observation below.

Notes: ES 12-6-90 probic swimming

PK 12-7-90 pale, lethargic

Reviewed JW 2/2/91

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Product Registration Laboratory Raw Data

Study Number 90171-3 Sample Number 21410E
Test Substance FIN 3820 Test Type: screen ☒ definitive ☐

DAPHNID DISSOLVED OXYGEN CONCENTRATION AND pH Page 1 of 2

Initiation Date 12-5-90 Test Organism D. magna

Test Vessel I.D.	Rep.	Dissolved Oxygen (mg/L)			pH		
		0 hr	24 hr	48 hr	0 hr	24 hr	48 hr
Control	1	7.3	9.5	9.2	8.4	8.6	8.6
	2	7.4	9.5	9.2	8.4	8.6	8.6
1	1	7.8	9.5	9.0	8.3	8.5	8.6
	2	7.8	9.5	9.0	8.3	8.5	8.6
2	1	7.7	9.5	9.0	8.3	8.5	8.6
	2	7.7	9.5	9.0	8.3	8.5	8.6
3	1	7.7	9.5	9.0	8.3	8.5	8.6
	2	7.7	9.5	9.1	8.3	8.5	8.6
4	1	7.6	9.5	9.0	8.3	8.5	8.6
	2	7.7	9.5	9.0	8.3	8.5	8.6
5	1	7.6	9.5	9.0	8.3	8.5	8.6
	2	7.6	9.5	9.0	8.3	8.5	8.6
	1	/	/	/	/	/	/
	2	/	/	/	/	/	/
Recorded by:		QW	ES	PK	ES	ES	PK
Date:		12-5-90	12-6-90	12-7-90	12-5-90	12-6-90	12-7-90

Notes: _____

Instrument Number:

PRL-3

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Product Registration Laboratory Raw Data

Study Number 90171-3 Sample Number 2649E
Test Substance FA 9820 Test Type: screen ☒ definitive ☐

DAPHNID TEMPERATURE AND CONDUCTIVITY

Page 1 of 2

Initiation Date 12-5-90 Test Organism D. magna

Test Vessel I.D.	Rep.	Temperature (°C)			Conductivity (umhos/cm)		
		0 hr	24 hr	48 hr	0 hr	24 hr	48 hr
Control	1	20.7	19.6	19.4	1310	1400	1300
	2	20.7	19.6	19.5	1310	1400	1300
1	1	20.8	19.4	19.8	1310	1300	1300
	2	20.7	19.6	19.7	1310	1300	1300
2	1	20.8	19.8	19.8	1310	1300	1300
	2	20.7	20.0	19.6	1300	1300	1300
3	1	20.7	20.2	19.6	1310	1300	1300
	2	20.8	20.2	19.7	1310	1300	1300
4	1	20.7	20.6	20.0	1310	1300	1300
	2	20.7	20.6	20.1	1300	1300	1300
5	1	20.8	20.8	20.0	1310	1300	1300
	2	20.9	20.8	20.1	1300	1300	1300
	1						
	2						

Recorded by:

Date:

③ 9m 12-5-90

Notes:

Instrument Number:

2265

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Resource Analysts, Inc./ EnviroSystems Division
Product Registration Laboratory Raw Data

Study Number 9017A-3

Sample Number 9017A-3

Test Substance EC 203

Test Type: screen ☒ definitive

ERROR CODES

1. Misspelled
2. Mathematical Error
3. Wrong Entry
4. Transposition or Sequencing Error (inverted or wrong order)
5. Transcription Change (copy error)
6. Procedural Change
7. Wrong Conclusion
8. Illegible Entry
9. Unnecessary Entry
10. Footnoted Explanation
11. Additional Comment

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Product Registration Laboratory Raw Data

Study Number SDS
Test Substance 10T # 1218901

Sample Number FW 5/4/91
Test Type: screen definitive ☒

TEST CONDITIONS

Date 12-18-90

Recorded By E. Stanford

Test Organism D magna

Lot Number 1218901

Test Duration 48 hr.

Flow Rate NA - static

Dilution Water natural well water

Salinity/
Hardness 160-180 mg/l

Age and Size of Test Organisms 24 hr.

Test Organism Abnormalities, Illness, or Injuries: none ☒ some (note)

Acclimation Period (length at test initiation in days) NA

Temperature 20.1 Incubator Number 12

Photoperiod: time on 0600 time off 2200 Light Intensity 23 uEin

15 Minute Transition Period: Yes No ☒

Number of Concentrations 5 - control

Dilution Factor 1.6

Number of Replicates 4

Number of Organisms per Replicate 5

Test Vessel Size (L) 0.25 Test Solution Volume (L) 0.26

Test Solution Depth (cm) 6

Solvent and Solvent Concentration NA

Loading Rate 20.5 g/l

Feeding NA

Dissolved Oxygen Levels > 70% do not aerate

Effect(s) Measured death, immobilization

Test Concentration Analysis NA

Water Quality Measurements D_o, pH, °C, cond.

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Product Registration Laboratory Raw Data

Study Number SD5

Sample Number 72514/91

Test Substance lot # 1218901

Test Type: screen definitive

RANDOMIZATION INFORMATION

Initiation Date 12-18-90

Test Organism D. magna

Test Vessel I.D.	Rep.	Vessel Location	Rep.	Vessel Location
<i>control</i>	1	<i>5</i>	3	<i>24</i>
	2	<i>16</i>	4	<i>3</i>
<i>1</i>	1	<i>11</i>	3	<i>8</i>
	2	<i>15</i>	4	<i>18</i>
<i>2</i>	1	<i>4</i>	3	<i>6</i>
	2	<i>13</i>	4	<i>14</i>
<i>3</i>	1	<i>2</i>	3	<i>10</i>
	2	<i>23</i>	4	<i>9</i>
<i>4</i>	1	<i>21</i>	3	<i>22</i>
	2	<i>17</i>	4	<i>7</i>
<i>5</i>	1	<i>20</i>	3	<i>19</i>
	2	<i>28</i>	4	<i>12</i>
	1		3	
	2		4	

Recorded by:

ES

Date:

12-18-90

Random Numbers*

88758	66605	33843
35661	42832	16240
26335	03771	46108
60826	74718	56527
95044	98896	3763
83746	47694	08143
27998	42562	63402
82685	32323	74625
18386	13862	60888
23717	13141	23707
18446	83052	31842
66027	75177	47398
51420	96779	54309
27045	62626	73159
13094	17725	14103
92382	62518	17752
16215	50809	49326
09342	14528	64727
38148	79001	03509
23689	19997	72382
25407	37726	73099
25349	69456	19693
02322	77491	56095
15072	33261	99219
27002	31036	85278
66181	83316	40386
09779	01822	45537
10791	07706	87481
74833	55767	31312
17583	24038	83701
45601	46977	39325
60683	33112	65995
29956	81169	18877
91713	84235	75296

* Draw a circle around the section of the random numbers table that is used to position the test vessels. Table of random numbers is from Steel, R.G.D and J.H. Torrie. (1960). Principles and Procedures of Statistics. McGraw-Hill Book Co. New York. Page 428.

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Reviewed TW 2/2/91

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Product Registration Laboratory Raw Data

Study Number SDS
Test Substance lot # 1218901

Sample Number NA 2/1/91
Test Type: screen definitive ☒

STOCK SOLUTION PREPARATION

Percent active ingredient (% AI) 100%

Nominal Concentrations corrected for % AI? yes ☒ no ☐

Balanced Used for Stock Solution Preparation PL-1

Preparation Notes:

A 1000 ng/l stock was made. 1.0 g of SDS was weighed and brought up to 1000 mls with dilution water. Stock solution was mixed and used as follows:

<u>conc ng/l</u>	<u>mls stock brought up to 200 mls w/ dilution water</u>
<u>0</u>	<u>0</u>
<u>1</u>	<u>.2</u>
<u>5</u>	<u>1</u>
<u>10</u>	<u>2</u>
<u>25</u>	<u>5</u>
<u>50</u>	<u>10</u>

Recorded by: E. Stanford Date 12-18-90
Reviewed / SW 2/2/91

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Product Registration Laboratory Raw Data

Study Number SDS Sample Number NA 12/24/01
Test Substance lot # 1218101 Test Type: screen definitive ☒

GENERAL INFORMATION

Notes:

ES 12-18-90 Test material was added to test vessel at 1415. Test organisms were added to randomly positioned test vessel at 1430.

ES 12-18-90 test vessels were stored in incubator PRL-12

ES 12-20-90 weight of control organisms in g
Control # of organisms in control

1 0.0007

4

2 0.0005

5

3 0.0088

5

4

5

Balance used PRL-2

Wet weight tested dry

Reviewed / 12/2/01

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Product Registration Laboratory Raw Data

Study Number SDS Sample Number NA 7034191
Test Substance 100 # 1218901 Test Type: screen definitive ☒

DAPHNID SOLUBILITY

Initiation Date 12-18-90 Test Organism D. magna

Test Vessel I.D.	Insoluble Material		
	0 hr	24 hr	48 hr
<i>control</i>	0	0	0
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
Recorded by	ES	YW	ES
Date:	12-18-90	12-19-90	12-20-90

If no insoluble material is observed enter a zero in the appropriate box.
If insoluble material is observed enter a check mark in the appropriate box and describe the observation below.

Notes: _____

Reviewed / PW 2/2/91

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Product Registration Laboratory Raw Data

Study Number SOS Sample Number NA W3/4/91
Test Substance 12-18-90 Test Type: screen definitive ☒

DAPHNID SURVIVAL AND SUBLETHAL EFFECTS

Page 1 of 2

Initiation Date 12-18-90 Test Organism D. magna

Test Vessel I.D.	Rep.	Number of Live Daphnids			Sublethal effects		
		0 hr	24 hr	48 hr	0 hr	24 hr	48 hr
Control	1	5	5	5	0	0	0
	2	5	5	5	0	0	0
	3	5	4	4	0	0	0
	4	5	5	5	0	0	0
1	1	5	5	5	0	0	0
	2	5	5	4	0	0	1
	3	5	5	4	0	0	0
	4	5	5	5	0	0	0
2	1	5	5	5	0	0	0
	2	5	5	4	0	0	0
	3	5	5	5	0	0	0
	4	5	5	5	0	0	2
3	1	5	5	5	0	0	0
	2	5	5	5	0	0	0
	3	5	5	5	0	0	2
	4	5	5	5	0	0	0
Recorded by:		QW	QW	ES	QW	QW	ES
Date:		12-18-90	12-19-90	12-20-90	12-18-90	12-19-90	12-20-90

ES 12-20-90

Reviewed W2/2/91
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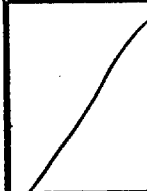
Resource Analysts, Inc./ EnviroSystems Division
Product Registration Laboratory Raw Data

Study Number SDS Sample Number NA 12/24/91
Test Substance loc # 1218901 Test Type: screen definitive ✓

DAPHNID SURVIVAL AND SUBLETHAL EFFECTS

Page 2 of 2

Initiation Date 12-18-90 Test Organism d. magna

Test Vessel I.D.	Rep.	Number of Live Daphnids			Sublethal effects		
		0 hr	24 hr	48 hr	0 hr	24 hr	48 hr
4	1	5	5	2	0	0	0
	2	5	5	4	0	0	1
	3	5	5	3	0	0	0
	4	5	5	2	0	0	0
5	1	5	3	0	0	0	0
	2	5	5	0	0	0	0
	3	5	5	0	0	0	0
	4	5	2	0	0	0	0
	1						
	2						
	3						
	4						
Recorded by:		gmc	gmc	ES	gmc	gmc	ES
Date:		12-18-90	12-19-90	12-20-90	12-18-90	12-19-90	12-20-90

If no sublethal effects are observed enter zero in the appropriate box. If sublethal effects are observed enter the number effected in the appropriate box and describe the observation below.

Notes: ES 12-20-90 immobilized

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Product Registration Laboratory Raw Data

Study Number SDS Sample Number NA 3/4/91
lot # 123901
Test Substance _____ Test Type: screen definitive ✓

DAPHNID DISSOLVED OXYGEN CONCENTRATION AND pH

Page 1 of 2

Initiation Date 12-18-90 Test Organism D. magna

Test Vessel I.D.	Rep.	Dissolved Oxygen (mg/L)			pH		
		PEL-3			PEL-4		
		0 hr	24 hr	48 hr	0 hr	24 hr	48 hr
control	1	8.0	8.3	8.2	7.7	8.3	8.5
	2	8.0	8.3	8.2	7.7	8.3	8.5
	3	8.0	8.2	8.4	7.7	8.3	8.5
	4	8.0	8.2	8.4	7.7	8.3	8.5
1	1	8.2	8.0	8.3	7.7	8.3	8.5
	2	8.2	8.1	8.3	7.7	8.3	8.5
	3	8.2	8.1	8.4	7.7	8.3	8.5
	4	8.2	7.8	8.3	7.7	8.3	8.5
2	1	8.2	8.2	8.2	7.7	8.3	8.5
	2	8.4	8.2	8.2	7.7	8.3	8.5
	3	8.3	8.2	8.4	7.7	8.3	8.5
	4	8.3	8.2	8.4	7.7	8.3	8.5
3	1	8.0	8.1	8.2	7.7	8.3	8.5
	2	8.0	8.2	8.3	7.7	8.3	8.5
	3	8.0	8.1	8.3	7.7	8.3	8.5
	4	8.0	8.2	8.3	7.7	8.3	8.5
Recorded by:		QW	QW	QW	QW	QW	QW
Date:		12-18-90	12-19-90	12-20-90	12-18-90	12-19-90	12-20-90

Reviewed fw 2/2/91
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Product Registration Laboratory Raw Data

Study Number SD5 Sample Number _____

Test Substance 10th 1218901

Test Type: screen definitive ✓

DAPHNID DISSOLVED OXYGEN CONCENTRATION AND pH

Page 2 of 2

Initiation Date 12-18-90

Test Organism D. magna

Test Vessel I.D.	Rep.	Dissolved Oxygen (mg/L)			pH		
		0 hr	24 hr	48 hr	0 hr	24 hr	48 hr
4	1	8.2	7.7	8.2	7.7	8.3	8.5
	2	8.2	7.9	8.3	7.7	8.3	8.5
	3	8.2	8.2	8.2	7.7	8.3	8.5
	4	8.4	8.2	8.3	7.7	8.3	8.5
5	1	8.5	8.0	8.3	7.7	8.3	8.5
	2	8.4	8.2	8.3	7.7	8.3	8.5
	3	8.2	8.2	8.2	7.7	8.3	8.5
	4	8.0	8.0	8.2	7.7	8.3	8.5
	1						
	2						
	3						
	4						
Recorded by:		g/h	g/h	g/h	g/h	g/h	g/h
Date:		12-18-90	12-19-90	12-20-90	12-18-90	12-19-90	12-20-90

Notes: _____

Renewed / TW 2/2/91

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Resource Analysts, Inc./ EnviroSystems Division
Product Registration Laboratory Raw Data

Study Number 555 Sample Number JA Tw3141a1
152 # 1218901
Test Substance _____ Test Type: screen definitive ☒

DAPHNID TEMPERATURE AND CONDUCTIVITY

Page 1 of 2

Initiation Date 12-18-90 Test Organism D. magna

Test Vessel I.D.	Rep.	Temperature (°C)			Conductivity (umhos/cm)		
		0 hr	24 hr	48 hr	0 hr	24 hr	48 hr
control	1	20.9	20.8	20.8	1200	1300	1300
	2	20.8	20.9	20.8	1200	1300	1300
	3	20.7	20.9	20.9	1200	1300	1300
	4	20.8	20.8	20.8	1200	1300	1300
1	1	20.8	20.8	20.8	1200	1300	1300
	2	20.9	20.8	20.8	1200	1300	1300
	3	20.7	20.9	20.8	1200	1300	1300
	4	20.7	20.8	20.8	1200	1300	1300
2	1	20.9	20.8	20.9	1200	1300	1300
	2	20.9	20.9	20.9	1200	1300	1300
	3	20.9	20.8	20.8	1200	1300	1300
	4	20.8	20.8	20.9	1200	1300	1300
3	1	20.9	20.9	20.9	1200	1300	1300
	2	20.9	20.8	20.9	1200	1300	1300
	3	20.8	20.8	20.9	1200	1300	1300
	4	20.8	20.9	20.9	1200	1300	1300
Recorded by:		gk	gk	es	gk	gk	gk
Date:		12-18-90	12-19-90	12-20-90	12-18-90	12-19-90	12-20-90

#2265

Reviewed / JW 2/2/91
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Product Registration Laboratory Raw Data

Study Number SDS Sample Number NA TW314191
Test Substance lot # 1218901 Test Type: screen definitive ✓

DAPHNID TEMPERATURE AND CONDUCTIVITY

Page 2 of 2

Initiation Date 12-18-90 Test Organism D. magna

Test Vessel I.D.	Rep.	Temperature (°C)			Conductivity (umhos/cm)		
		0 hr	24 hr	48 hr	0 hr	24 hr	48 hr
4	1	20.7	20.8	20.7	1200	1300	1300
	2	20.8	20.8	20.7	1200	1300	1300
	3	20.9	20.7	20.6	1200	1300	1300
	4	20.8	20.8	20.8	1200	1300	1300
5	1	20.8	20.9	21.0	1200	1300	1300
	2	20.8	20.8	20.9	1200	1300	1300
	3	20.9	20.8	20.9	1200	1300	1300
	4	20.9	20.9	20.9	1200	1300	1300
	1						
	2						
	3						
	4						
Recorded by:		Qm	Qm	ES	Qm	Qm	Qm
Date:		12-18-90	12-19-90	12-20-90	12-18-90	12-19-90	12-20-90

Notes: _____

_____ *Reviewed TW 2/2/91*

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Product Registration Laboratory Raw Data

Study Number SOS Sample Number NA TW 2141
Test Substance 100% 128901 Test Type: screen definitive ☒

ERROR CODES

1. Misspelled
2. Mathematical Error
3. Wrong Entry
4. Transposition or Sequencing Error (inverted or wrong order)
5. Transcription Change (copy error)
6. Procedural Change
7. Wrong Conclusion
8. Illegible Entry
9. Unnecessary Entry
10. Footnoted Explanation
11. Additional Comment

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Product Registration Laboratory Raw Data

Study Number 90171-3 Sample Number 2696E
Test Substance FM3820 Test Type: screen definitive ☒

TEST CONDITIONS

Date 12-18-90 Recorded By John E. Stanford
Test Organism d. magna Lot Number 1218901
Test Duration 48 hrs Flow Rate NA
Dilution Water natural well water Salinity/
Hardness 160-80 mg/L
Age and Size of Test Organisms 24 hr.
Test Organism Abnormalities, Illness, or Injuries: none ☒ some (note) NA
Acclimation Period (length at test initiation in days) NA
Temperature 20±1 Incubator Number 12
Photoperiod: time on 0600 time off 2200 Light Intensity 23 uEin
15 Minute Transition Period: Yes NA No ☒
Number of Concentrations 5: Control
Dilution Factor ≤ 1.6
Number of Replicates 24 B4u 12-18-90
Number of Organisms per Replicate 5
Test Vessel Size (L) 0.25 Test Solution Volume (L) 0.20
Test Solution Depth (cm) 6
Solvent and Solvent Concentration NA
Loading Rate 2 0.5g/L
Feeding NOT FED
Dissolved Oxygen Levels > 70% don't aerate
Effect(s) Measured death sublethal effects immobilization
Test Concentration Analysis NA
Water Quality Measurements NO, pH, ^{uL}, cond Revised JW 2/2/91

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Product Registration Laboratory Raw Data

Study Number 90-71-3

Sample Number 2190E

Test Substance FM 3820

Test Type: screen definitive ✓

RANDOMIZATION INFORMATION

Initiation Date 12-18-90

Test Organism D. magna

Test Vessel I.D.	Rep.	Vessel Location	Rep.	Vessel Location
control	1	13	3	1
	2	6	4	17
1	1	16	3	15
	2	11	4	14
2	1	2	3	9
	2	10	4	7
3	1	18	3	19
	2	3	4	21
4	1	12	3	22
	2	24	4	8
5	1	5	3	4
	2	23	4	26
	1		3	
	2		4	
Recorded by:		ES		
Date:		12-18-90		

Random Numbers*

88758	66605	33843
35661	42832	16240
26335	03771	46115
60826	74718	56527
95044	98896	13763
83746	47694	06123
27998	42562	63407
82685	32123	74625
18386	13862	10988
21717	13141	22107
18446	83052	30942
66027	75177	47398
51429	96779	54309
27035	62626	73159
13094	17725	14103
92382	62518	17752
16215	50809	49326
09342	14528	64727
38148	79001	03509
23689	19997	72382
25407	37726	73099
25349	69456	19693
02322	77491	56095
15072	33261	99039
27002	31036	85278
66181	83316	40386
09779	01822	45537
10791	07706	87481
74833	55767	31312
17583	23038	83707
45601	46977	39325
60683	33112	65995
29956	81169	18877
91713	84235	75296

* Draw a circle around the section of the random numbers table that is used to position the test vessels. Table of random numbers is from Steel, R.G.D. and J.H. Torrie. (1960). Principles and Procedures of Statistics. McGraw-Hill Book Co. New York. Page 428.

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Revised RW 2/1/91

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Product Registration Laboratory Raw Data

Study Number 90171-3 Sample Number 2696E
Test Substance FM 3820 Test Type: screen definitive ☒

STOCK SOLUTION PREPARATION

Percent active ingredient (% AI) 100%

Nominal Concentrations corrected for % AI? yes ☒ no ☐

Balanced Used for Stock Solution Preparation ☐

Preparation Notes:

A 1000 mg/l stock was made 1.0 g of 2696E
was weighed and brought up to 1000 ml with
dilution water. Stock solution was mixed and
used as follows:

<u>conc mg/l</u>	<u>mls stock brought up to 200 mls w/ dilution water</u>
<u>0</u>	<u>0</u>
<u>25</u>	<u>5</u>
<u>40</u>	<u>8</u>
<u>60</u>	<u>12</u>
<u>100</u>	<u>20</u>
<u>150</u>	<u>30</u>

Revised / TW 2/2/91

Recorded by: E. Stanford Date 12-18-90

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Resource Analysts, Inc./ EnviroSystems Division
Product Registration Laboratory Raw Data

Study Number 90191-3

Sample Number 2696E

Test Substance FA 3820

Test Type: screen definitive ✓

GENERAL INFORMATION

Notes:

ES 12-18-90 Test material was added at 1400 hr.
Test organisms were added to randomly
positioned test vessels at 1415 hr.

ES 12-18-90 Test vessels were stored in incubator
PRL-12.

ES 12-20-90 Weight of control organisms in g.

Control	# of control organisms
1 0.0004g	4
2 0.0005g	5
3 0.0003g	5
4 0.0003g	5

mean = 0.0001 g TW 2/2/91

Balance PRL-2 was used
Wet weight, stored dry

Reviewed / TW 2/2/91

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Product Registration Laboratory Raw Data

Study Number 90141-3 Sample Number 2696E
Test Substance Pro 3820 Test Type: screen definitive ✓

DAPHNID SOLUBILITY

Initiation Date 12-18-90 Test Organism D. magna

Test Vessel I.D.	Insoluble Material		
	0 hr	24 hr	48 hr
control	0	0	0
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
Recorded by	Q/W	Q/W	ES
Date:	12-18-90	12-19-90	12-20-90

If no insoluble material is observed enter a zero in the appropriate box.
If insoluble material is observed enter a check mark in the appropriate box and describe the observation below.

Notes: _____

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Revised 12/2/91

001659

Resource Analysts, Inc./ EnviroSystems Division
Product Registration Laboratory Raw Data

Study Number 90171-3 Sample Number 2696E
Test Substance FIN 3826 Test Type: screen definitive ✓

DAPHNID SURVIVAL AND SUBLETHAL EFFECTS

Page 1 of 2

Initiation Date 12-18-90 Test Organism D. magna

Test Vessel I.D.	Rep.	Number of Live Daphnids			Sublethal effects		
		0 hr	24 hr	48 hr	0 hr	24 hr	48 hr
Control	1	5	5	4	0	0	0
	2	5	5	5	0	0	0
	3	5	5	5	0	0	0
	4	5	5	5	0	0	0
1	1	5	5	5	0	0	0
	2	5	5	5	0	0	0
	3	5	5	5	0	0	0
	4	5	5	5	0	0	0
2	1	5	5	3	0	0	0
	2	5	5	5	0	0	0
	3	5	5	3	0	0	1
	4	5	4	4	0	0	0
3	1	5	5	2	0	0	2
	2	5	5	4	0	0	0
	3	5	5	4	0	0	4
	4	5	5	5	0	0	3
Recorded by:		Y/m	Y/m	ES	Y/m	Y/m	ES
Date:		12-18-90	12-19-90	12-20-90	12-18-90	12-19-90	12-20-90

Reviewed TW 2/2/91
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001660

Resource Analysts, Inc./ EnviroSystems Division
Product Registration Laboratory Raw Data

Study Number 90171-3 Sample Number 2696E
Test Substance FR 3820 Test Type: screen definitive ☒

DAPHNID SURVIVAL AND SUBLETHAL EFFECTS

Page 2 of 2

Initiation Date 12-18-90 Test Organism D. magna

Test Vessel I.D.	Rep.	Number of Live Daphnids			Sublethal effects		
		0 hr	24 hr	48 hr	0 hr	24 hr	48 hr
4	1	5	5	0	0	0	0
	2	5	5	0	0	0	0
	3	5	5	0	0	0	0
	4	5	5	0	0	0	0
5	1	5	3	0	0	0	0
	2	5	5	0	0	0	0
	3	5	4	0	0	0	0
	4	5	4	0	0	0	0
	1						
	2						
	3						
	4						
Recorded by:		Qm	Qm	ES	Qm	Qm	ES
Date:		12-18-90	12-19-90	12-20-90	12-18-90	12-19-90	12-20-90

ES 12-20-90

If no sublethal effects are observed enter zero in the appropriate box. If sublethal effects are observed enter the number effected in the appropriate box and describe the observation below.

Notes: ES 12-20-90 immobilized

Reviewed / JW 2/2/91

Resource Analysts, Inc./ EnviroSystems Division
Product Registration Laboratory Raw DataStudy Number 9011-3 Sample Number 2696 ETest Substance FM 3820 Test Type: screen definitive ✓

DAPHNID DISSOLVED OXYGEN CONCENTRATION AND pH

Page 1 of 2

Initiation Date 12-18-90 Test Organism D. magna

Test Vessel I.D.	Rep.	Dissolved Oxygen (mg/L)			pH		
		0 hr	24 hr	48 hr	0 hr	24 hr	48 hr
control	1	8.3	8.2	8.5	7.8	8.2	8.6
	2	8.3	8.2	8.5	7.8	8.2	8.6
	3	8.3	8.3	8.5	7.8	8.2	8.6
	4	8.3	8.2	8.5	7.8	8.2	8.6
1	1	8.3	8.2	8.5	7.8	8.2	8.6
	2	8.3	8.2	8.5	7.8	8.2	8.6
	3	8.3	8.1	8.5	7.8	8.2	8.6
	4	8.3	8.1	8.5	7.8	8.2	8.6
2	1	8.2	8.2	8.4	7.8	8.2	8.6
	2	8.2	8.2	8.3	7.8	8.2	8.6
	3	8.3	8.3	8.5	7.8	8.2	8.6
	4	8.3	8.2	8.5	7.8	8.2	8.6
3	1	8.3	8.1	8.0	7.8	8.2	8.6
	2	8.2	8.1	8.3	7.8	8.2	8.6
	3	8.2	8.2	8.3	7.8	8.2	8.6
	4	8.3	8.3	8.4	7.8	8.2	8.6
Recorded by:		Qm	Qm	Qm	Qm	Qm	Qm
Date:		12-18-90	12-19-90	12-20-90	12-18-90	12-19-90	12-20-90

Reviewed TW 2/2/91

Resource Analysts, Inc. Subsidiary of MILLIPORE

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Resource Analysts, Inc./ EnviroSystems Division
Product Registration Laboratory Raw Data

Study Number 96171-3 Sample Number 2694E
Test Substance FM 3820 Test Type: screen definitive ☒

DAPHNID DISSOLVED OXYGEN CONCENTRATION AND pH Page 2 of 2

Initiation Date 12-18-90 Test Organism D. magna

Test Vessel I.D.	Rep.	Dissolved Oxygen (mg/L) <i>PRC-3</i>			pH <i>PRC-4</i>		
		0 hr	24 hr	48 hr	0 hr	24 hr	48 hr
<i>③</i> <i>4</i>	1	8.2	8.1	8.5	7.8	8.2	8.6
	2	8.3	8.1	8.4	7.8	8.2	8.6
	3	8.2	8.3	8.3	7.8	8.2	8.6
	4	8.2	8.2	8.4	7.8	8.2	8.6
<i>5</i>	1	8.3	8.1	8.5	7.8	8.3	8.6
	2	8.2	8.1	8.5	7.8	8.3	8.6
	3	8.2	8.2	8.4	7.8	8.3	8.6
	4	8.2	8.2	8.5	7.8	8.2	8.6
<i>/</i>	1						
	2						
	3						
	4						
Recorded by:		<i>Qm</i>	<i>Qm</i>	<i>Qm</i>	<i>Qm</i>	<i>Qm</i>	<i>Qm</i>
Date:		12-18-90	12-19-90	12-21-90	12-18-90	12-19-90	12-20-90

Notes: _____

Reviewed / TW 2/2/91

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Product Registration Laboratory Raw Data

Study Number 90171-3 Sample Number 21916E
Test Substance FR3820 Test Type: screen definitive ✓

Page 1 of 2

DAPHNID TEMPERATURE AND CONDUCTIVITY

Initiation Date 12-18-90 Test Organism D. magna

Test Vessel I.D.	Rep.	Temperature (°C)			Conductivity (umhos/cm)		
		0 hr	24 hr	48 hr	0 hr	24 hr	48 hr
Control	1	20.8	20.9	21.0	1200	1300	1300
	2	20.8	21.0	21.0	1200	1300	1300
	3	20.9	20.9	20.8	1200	1300	1300
	4	20.9	20.9	20.9	1200	1300	1300
1	1	20.8	20.8	20.9	1200	1300	1300
	2	20.8	20.9	21.0	1200	1300	1300
	3	20.7	20.8	21.0	1200	1300	1300
	4	20.7	20.9	21.0	1200	1300	1300
2	1	20.9	20.9	20.8	1200	1300	1300
	2	20.8	20.8	20.6	1200	1300	1300
	3	20.9	20.7	20.6	1200	1300	1300
	4	20.9	20.8	20.9	1200	1300	1300
3	1	20.7	20.8	20.9	1200	1300	1300
	2	20.7	20.8	20.9	1200	1300	1300
	3	20.9	20.9	20.9	1200	1300	1300
	4	20.8	20.8	20.9	1200	1300	1300
Recorded by:		Gm	gm	Q 86	Q/m	gm	Q/m
Date:		12-18-90	12-19-90	12-20-90	12-18-90	12-19-90	12-20-90

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Product Registration Laboratory Raw Data

Study Number 90171-3 Sample Number 2696E

Test Substance FM 3820 Test Type: screen definitive ☒

DAPHNID TEMPERATURE AND CONDUCTIVITY

Page 2 of 2

Initiation Date 12-18-90 Test Organism D. magna

Test Vessel I.D.	Rep.	Temperature (°C)			Conductivity (umhos/cm)		
		0 hr	24 hr	48 hr	0 hr	24 hr	48 hr
4	1	20.8	20.9	21.0	1200	1300	1300
	2	20.7	20.8	20.9	1200	1300	1300
	3	20.8	20.8	20.9	1200	1300	1300
	4	20.8	20.9	21.0	1200	1300	1300
5	1	20.9	20.8	20.9	1200	1300	1300
	2	20.7	20.9	20.9	1200	1300	1300
	3	20.8	20.9	20.9	1200	1300	1300
	4	20.8	20.9	20.9	1200	1300	1300
	1						
	2						
	3						
	4						
Recorded by:		g/w	g/w	ES	g/w	g/w	g/w
Date:		12-18-90	12-19-90	12-20-90	12-18-90	12-19-90	12-20-90

Notes: _____

Reviewed / TW 2/2/91

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**Resource Analysts, Inc./ EnviroSystems Division
Product Registration Laboratory Raw Data**

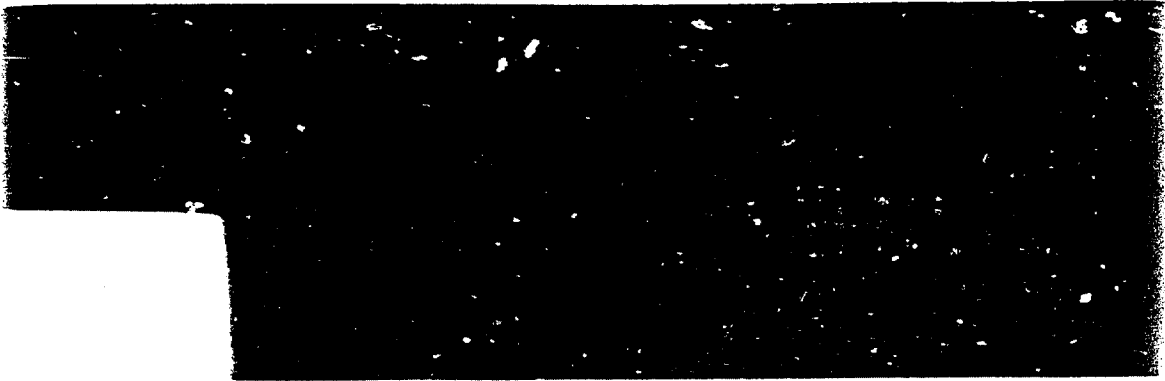
Study Number 90171-3 Sample Number 21096E
Test Substance PA 3820 Test Type: screen definitive ☒

ERROR CODES

1. Misspelled
2. Mathematical Error
3. Wrong Entry
4. Transposition or Sequencing Error (inverted or wrong order)
5. Transcription Change (copy error)
6. Procedural Change
7. Wrong Conclusion
8. Illegible Entry
9. Unnecessary Entry
10. Footnoted Explanation
11. Additional Comment

EnviroSystems, Inc. Product Registration

001667



-----LC VALUES-----

IT IS IMPORTANT THAT ALL RESULTS BE COMPARED WITH THE ORIGINAL DATA TO SEE IF THE RESULTS SEEM REASONABLE. MOST, IF NOT ALL, METHODS FOR CALCULATING LC50 VALUES PERFORM POORLY WITH SOME SETS OF DATA, ALTHOUGH MANY PRECAUTIONS HAVE BEEN INCORPORATED INTO THIS PROGRAM, SOME QUESTIONABLE RESULTS MAY BE PRINTED WITHOUT A CAUTIONARY STATEMENT.

9071-3
SDS
48 HR LC50
TW 2/2/91

-----BINOMIAL TEST-----

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
50	20	20	100	LESS THAN 0.001
25	20	10	50	58.8098
10	20	3	15	.1288413
5	20	3	15	.1288413
1	20	4	20	.5908963

THE BINOMIAL TEST SHOWS THAT 10 AND 50 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS BECAUSE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT

25 CAN BE USED AS AN APPROXIMATE LC50 FOR THIS DATA SET

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-----RESULTS CALCULATED USING THE MOVING AVERAGE METHOD-----

LC50 @ TW 1/1/91

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
4	7.809802E-02	15.58225	10.89568	23.84768
3	8.009978E-02	17.89105	13.92568	23.48557
2	.0864314	20.97725	16.68199	25.78795
1	.7002976	25	16.9624	313.4993

AN LC50 CALCULATED USING THE MOVING AVERAGE METHOD MAY NOT BE A VERY GOOD ESTIMATE IF THE SPAN IS MUCH LESS THAN THE NUMBER OF CONCENTRATIONS.

IF ANY HIGHER CONCENTRATION PRODUCES A LOWER PERCENT DEAD THAN A LOWER CONCENTRATION, THE CONFIDENCE LIMIT AS OBTAINED BY THE MOVING AVERAGE METHOD WILL PROBABLY BE TOO CLOSE.

-----RESULTS CALCULATED USING THE PROBIT METHOD-----

ITERATIONS	G	H	CHI-SQUARE	PROBABILITY
4	3.296692	7.061959	21.18588	LESS THAN 0.001

BECAUSE THE PROBABILITY IS LESS THAN 0.05, RESULTS CALCULATED USING THE PROBIT METHOD PROBABLY SHOULD NOT BE USED.

SLOPE = 1.295843
95 PERCENT CONFIDENCE LIMITS = -1.056992 AND 3.648677

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POINT	CONC.	LOWER 95% CONFIDENCE LIMITS	UPPER 95% CONFIDENCE LIMITS

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9071-3

LC VALUES

48 HZ EC50

JW 2/2/91

IT IS IMPORTANT THAT ALL RESULTS BE COMPARED WITH THE ORIGINAL DATA TO SEE IF THE RESULTS SEEM REASONABLE. FIRST, IF NOT ALL, METHODS FOR CALCULATING LC50 VALUES PERFORM POORLY WITH SOME SETS OF DATA, ALTHOUGH MANY PRECAUTIONS HAVE BEEN INCORPORATED INTO THIS PROGRAM, SOME QUESTIONABLE RESULTS MAY BE PRINTED WITHOUT A CAUTIONARY STATEMENT.

BINOMIAL TEST

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
150	20	20	100	LESS THAN 0.001
100	20	20	100	LESS THAN 0.001
60	20	14	70	5.765907
40	20	6	30	5.765907
25	20	0	0	LESS THAN 0.001

THE BINOMIAL TEST SHOWS THAT 25 AND 100 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS BECAUSE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT

AN APPROXIMATE LC50 OF 48.98977 IS OBTAINED BY NONLINEAR INTERPOLATION BETWEEN 40 AND 60

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
4	.0422766	50.3058	43.41018	57.25496
3	5.480177E-02	49.29081	43.61243	55.76042
2	.1234816	48.98979	39.82044	56.50342
2	.1234816	48.98979	42.74617	59.71668
1	.6117131	48.98977	37.98345	63.18534

AN LC50 CALCULATED USING THE MOVING AVERAGE METHOD MAY NOT BE A VERY GOOD ESTIMATE IF THE SPAN IS MUCH LESS THAN THE NUMBER OF CONCENTRATIONS.

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	CHI-SQUARE	PROBABILITY
5	.1496121	1	1.004782	.8000948

SLOPE = 7.77544
95 PERCENT CONFIDENCE LIMITS = 4.767922 AND 10.78296

POINT	CONC.	LOWER 95% CONFIDENCE LIMITS	UPPER 95% CONFIDENCE LIMITS
EC 50	49.08664	43.25647	55.85722

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PRODUCT CODE: F-7082 FM-3820 F-7460

PAGE 1 OF 2.

91.0604

MATERIAL DESIGNATION:

ISSUE DATE: 9/17/1987 SUPERSEDES: 05/28/86
FLUOROchemical SALT

3M I.D. NUMBER:

41-2600-7082-0; 41-2700-3820-5;
41-2600-7460-8

NFPA DIAMOND CODE:

HEALTH: 1 FIRE: 2 REACTIVITY: 0 OTHER: ND

FOR 24-HOUR EMERGENCY INFORMATION ON HEALTH EFFECTS CALL: (612)733-2882

1. INGREDIENTS	CAS NUMBER	%	TLV(R)(UNIT)
DIETHYLENE GLYCOL MONOBUTYL ETHER+	112-34-5	CA 36	NONE
WATER	7732-18-5	CA 36	NONE
FLUROchemical SALT	2795-39-3	28	NONE

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+SUBJECT TO SECTION 313 SARA TITLE III

2. PHYSICAL DATA

BOILING POINT:	>212 DEG F	SOLUBILITY IN WATER:	SOLUBLE
VAPOR PRESSURE:	<18MM@RT	SPECIFIC GRAVITY(H2O=1):	1.08
VAPOR DENSITY(AIR=1):	ND	PERCENT VOLATILE:	72%
EVAPORATION RATE:	ND	VISCOSITY:	<100 CPS
		PH:	10-10.5

APPEARANCE AND ODOR: SLIGHT TINTED LIQUID; BUTYL CARBITOL ODOR

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT(TEST METHOD): 172 DEG F. MIN.(CC)(EST.) FLA.LMT. LEL:ND UEL:ND
EXTINGUISHING MEDIA: FOAM, DRY CHEMICAL, CO2, WATER FOG.
SPECIAL FIRE FIGHTING PROCEDURES: NONE
UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE EXPECTED, BUT SEE ALSO SECTION 7.

4. PRECAUTIONARY INFORMATION

WEAR FULL FACE SHIELD. WEAR IMPERVIOUS GLOVES.

PRODUCT CODE: F-7082 FM-3820 F-7460

PAGE 2 OF 2.

5. HEALTH HAZARD DATA

EYE CONTACT: CAUSES IRRITATION ON CONTACT.

SKIN CONTACT: MAY CAUSE IRRITATION, DRYING AND CRACKING ON PROLONGED OR
REPEATED CONTACT. MAY BE ABSORBED THROUGH THE SKIN.

INHALATION: ===

INGESTION: MODERATELY TOXIC ON INGESTION.

SUGGESTED FIRST AID

EYE CONTACT: IMMEDIATELY FLUSH WITH LARGE AMOUNTS OF WATER FOR AT LEAST TEN
MINUTES AND GET MEDICAL ATTENTION.

SKIN CONTACT: REMOVE CONTAMINATED CLOTHING. LAUNDER BEFORE RE-USE. WASH
AFFECTED SKIN AREA WITH SOAP AND WATER. DISCARD CONTAMINATED
SHOE AND GLOVES.

INHALATION: ===

INGESTION: GIVE WATER OR MILK AND GET MEDICAL ATTENTION IMMEDIATELY.

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SPILL RESPONSE: OBSERVE PRECAUTIONS FROM OTHER SECTIONS. USE APPROPRIATE
ABSORBENT MATERIAL AS NEEDED IN CLEANUP PROCEDURE. COLLECT
SPILLED MATERIAL. CLEAN UP RESIDUES WITH WATER. PLACE IN AN
APPROVED METAL CONTAINER AND SEAL.

RECOMMENDED DISPOSAL: SEND TO 3M CHEMOLITE PLANT - BLDG. 47, OR TO A 3M
APPROVED CHEMICAL WASTE DISPOSAL FACILITY FOR DISPOSAL.

ENVIRONMENTAL DATA: SEE 'NON-REGULATED CHEMICALS' IN 3M WASTE DISPOSAL
PROCEDURES MANUAL FOR LABELING/MARKING/PACKAGING/SHIPPING
DATA. HAZARDOUS WASTE NUMBER/CODE: NONE

7. REACTIVITY DATA

STABILITY: STABLE (CONDITIONS TO AVOID):
ND

INCOMPATIBILITY: === (MATERIALS TO AVOID):
ND

HAZARDOUS POLYMERIZATION: WON'T OCCUR (CONDITIONS TO AVOID):
NA

HAZARDOUS DECOMPOSITION PRODUCTS: HF.

INFORMATION ON THIS DATA SHEET REPRESENTS OUR CURRENT DATA AND BEST JUDGEMENT
AS TO THE PROPER USE AND HANDLING OF THIS PRODUCT UNDER NORMAL CONDITIONS.

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90171-3

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PRODUCT REGISTRATION LABORATORY EQUIPMENT INSPECTION LOG

Month December Year 1990

Day of Month	Check if Operation Normal						Deionizer		Notes	By/Date
	Air Bl.	Em. Gen.	FH	HVAC	L&T	Was. T.S.	Lit	Repl		
1	✓	✓	✓	✓	✓	✓	✓			ES 12-1-90
2	✓	✓	✓	✓	✓	✓	✓			ES 12-2-90
3	✓	✓	✓	✓	✓	✓	✓	✓		ES 12-3-90
4	✓	✓	✓	✓	✓	✓	✓			ES 12-4-90
5	✓	✓	✓	✓	✓	✓	✓			ES 12-5-90
6	✓	✓	✓	✓	✓	✓	✓			YM 12-6-90
7	✓	✓	✓	✓	✓	✓	✓	✓	(32-7-90	YM 12-7-90
8	✓	✓	✓	✓	✓	✓	✓			ES 12-8-90
9	✓	✓	✓	✓	✓	✓	✓			ES 12-9-90
10	✓	✓	✓	✓	✓	✓	✓	✓	2012-10-90	ES 12-10-90
11	✓	✓	✓	✓	✓	✓	✓			YM 12-11-90
12	✓	✓	✓	✓	✓	✓	✓			YM 12-11-90
13	✓	✓	✓	✓	✓	✓	✓			ES 12-13-90
14	✓	✓	✓	✓	✓	✓	✓			ES 12-14-90
15	✓	✓	✓	✓	✓	✓	✓	✓		YM 12-15-90
16	✓	✓	✓	✓	✓	✓	✓			YM 12-16-90
17	✓	✓	✓	✓	✓	✓	✓			ES 12-17-90
18	✓	✓	✓	✓	✓	✓	✓			YM 12-18-90
19	✓	✓	✓	✓	✓	✓	✓			YM 12-19-90
20	✓	✓	✓	✓	✓	✓	✓	✓		ES 12-20-90
21	✓	✓	✓	✓	✓	✓	✓			YM 12-21-90
22	✓	✓	✓	✓	✓	✓	✓			ES 12-22-90
23	✓	✓	✓	✓	✓	✓	✓			ES 12-23-90
24	✓	✓	✓	✓	✓	✓	✓			ES 12-24-90
25	✓	✓	✓	✓	✓	✓	✓			ES 12-25-90
26	✓	✓	✓	✓	✓	✓	✓			YM 12-26-90
27	✓	✓	✓	✓	✓	✓	✓	✓		ES 12-27-90
28	✓	✓	✓	✓	✓	✓	✓			YM 12-28-90
29	✓	✓	✓	✓	✓	✓	✓			YM 12-29-90
30	✓	✓	✓	✓	✓	✓	✓			YM 12/30/90
31	✓	✓	✓	✓	✓	✓	✓			ES 12-31-90

EQUIPMENT CODES

Air Bl. - Air Blower
 Em. Gen. - Emergency Generator
 L&T - Lights and Timers
 HVAC - Heating, Ventilating and Air Conditioning System
 FH - Fume Hood
 Was. T.S. - Waste Treatment System
 Deionizer - Check "Lit" if both lights are illuminated, and check "Repl" if the unit was replaced

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SIGNATURE Sam DATE 01-03-91

4 Pages

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PRODUCT REGISTRATION LABORATORY EQUIPMENT INSPECTION LOG

Month

December

Year

1990

Day of Month	Photoperiod (hrl)						Light Intensity ($\mu\text{Ein}/\text{cm}^2$)						By/Date
	Incubator Number						Incubator Number						
	12	13	14			CR	12	13	14			CR	
1	16	24	16	/	/	16	30	35	26	/	/	13	ES 12-1-90
2	16	24	16	/	/	16	30	35	25	/	/	13	ES 12-2-90
3	16	24	16	/	/	16	30	32	25	/	/	13	ES 12-3-90
4	16	24	16	/	/	16	30	32	25	/	/	14	ES 12-4-90
5	16	24	16	/	/	16	30	35	25	/	/	14	Qm 12-5-90
6	16	24	16	/	/	16	30	35	25	/	/	14	Qm 12-6-90
7	16	24	16	/	/	16	30	45	25	/	/	15	Qm 12-7-90
8	16	24	16	/	/	16	30	42	25	/	/	14	PK 12-8-90
9	16	24	16	/	/	16	30	42	25	/	/	14	PK 12-9-90
10	16	24	16	/	/	16	30	31	26	/	/	12	ES 12-10-90
11	16	24	16	/	/	16	30	33	25	/	/	14	Qm 12-11-90
12	16	24	16	/	/	16	20	35	25	/	/	15	Qm 12-12-90
13	16	24	16	/	/	16	23	38	26	/	/	13	ES 12-13-90
14	16	24	16	/	/	16	20	36	26	/	/	14	ES 12-14-90
15	16	24	16	/	/	16	25	35	25	/	/	14	Qm 12-15-90
16	16	24	16	/	/	16	23	35	25	/	/	14	Qm 12-16-90
17	16	24	16	/	/	16	23	35	26	/	/	14	ES 12-17-90
18	16	24	16	/	/	16	23	35	25	/	/	14	Qm 12-18-90
19	16	24	16	/	/	16	25	35	25	/	/	15	Qm 12-19-90
20	16	24	16	/	/	16	25	35	25	/	/	14	ES 12-20-90
21	16	24	16	/	/	16	25	35	25	/	/	15	Qm 12-21-90
22	16	24	16	/	/	16	24	36	24	/	/	14	ES 12-22-90
23	16	24	16	/	/	16	24	35	25	/	/	14	PK 12-23-90
24	16	24	16	/	/	16	24	36	23	/	/	14	ES 12-24-90
25	16	24	16	/	/	16	24	36	24	/	/	14	ES 12-25-90
26	16	24	16	/	/	16	24	36	24	/	/	14	Qm 12-26-90
27	16	24	16	/	/	16	24	36	24	/	/	15	Qm 12-27-90
28	16	24	16	/	/	16	24	36	24	/	/	15	Qm 12-28-90
29	16	24	16	/	/	16	26	36	24	/	/	15	FW 12-29-90
30	16	24	16	/	/	16	26	35	22	/	/	13	FW 12-30-90
31	16	24	16	/	/	16	23	39	24	/	/	13	ES 12-31-90

EQUIPMENT CODES

CR = culture room

Resource Analysts Inc., Subsidiary of MILLIPORE

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PRODUCT REGISTRATION LABORATORY EQUIPMENT CALIBRATION LOG

 Month December

 Year 1990

Day of Mo.	Dissolved Oxygen meter: <u>PH-3</u>			pH meter: <u>PH-4</u>			Conductivity meter: <u>PH-9</u>		Salinity meter:		Refractometer no.: <u>PH-1</u>		By
	°C	Theo	Act	pH 4	pH 7	pH 10	Theo	Act	Theo	Act	Theo	Act	
1	19	9.3	9.3	4.00	7.02	10.05	1.000	1.000	✓	✓	20	20	ES
2	18	9.3	9.3	4.00	7.05	10.05	1.000	1.000	✓	✓	20	20	ES
3	18	9.5	9.5	4.00	7.07	10.05	1.000	1.000	✓	✓	20	20	ES
4	20	9.1	9.1	4.00	7.03	10.05	1.000	1.000	✓	✓	20	20	ES
5	18	9.5	9.5	4.00	7.07	10.05	1.000	1.000	✓	✓	20	20	ES
6	19	9.3	9.3	4.00	7.00	10.03	1.000	1.000	✓	✓	20	20	ES
7	18	9.5	9.5	4.00	7.07	10.05	1.000	1.000	✓	✓	20	20	ES
8	19	9.3	9.3	4.00	7.02	10.05	1.000	1.000	✓	✓	20	20	ES
9	19	9.3	9.3	4.00	7.03	10.05	1.000	1.000	✓	✓	20	20	ES
10	20	9.1	9.1	4.00	7.04	10.05	1.000	1.000	✓	✓	20	20	ES
11	19	9.3	9.3	4.00	7.02	10.05	1.000	1.000	✓	✓	20	20	ES
12	18	9.5	9.5	4.00	7.07	10.05	1.000	1.000	✓	✓	20	20	ES
13	20	9.1	9.1	4.00	7.00	10.03	1.000	1.000	✓	✓	20	20	ES
14	19	9.5	9.5	4.00	7.00	10.03	1.000	1.000	✓	✓	20	20	ES
15	18	9.5	9.5	4.00	7.00	10.03	1.000	1.000	✓	✓	20	20	ES
16	18	9.5	9.5	4.00	7.01	10.05	1.000	1.000	✓	✓	20	20	ES
17	18	9.5	9.5	4.00	7.03	10.05	1.000	1.000	✓	✓	20	20	ES
18	19	9.3	9.3	4.00	7.02	10.05	1.000	1.000	✓	✓	20	20	ES
19	19	9.3	9.3	4.00	7.01	10.03	1.000	1.000	✓	✓	20	20	ES
20	18	9.5	9.5	4.00	7.02	10.05	1.000	1.000	✓	✓	20	20	ES
21	19	9.3	9.3	4.00	7.03	10.05	1.000	1.000	✓	✓	20	20	ES
22	19	9.3	9.3	4.00	7.01	10.03	1.000	1.000	✓	✓	20	20	ES
23	20	9.1	9.1	4.00	7.02	10.05	1.000	1.000	✓	✓	20	20	ES
24	20	9.1	9.1	4.00	7.03	10.05	1.000	1.000	✓	✓	20	20	ES
25	18	9.5	9.5	4.00	7.05	10.05	1.000	1.000	✓	✓	20	20	ES
26	18	9.5	9.5	4.00	7.04	10.05	1.000	1.000	✓	✓	20	20	ES
27	19	9.5	9.5	4.00	7.03	10.05	1.000	1.000	✓	✓	20	20	ES
28	18	9.5	9.5	4.00	7.01	10.05	1.000	1.000	✓	✓	20	20	ES
29	19	9.3	9.3	4.00	7.04	10.05	1.000	1.000	✓	✓	20	20	ES
30	19	9.3	9.3	4.00	7.03	10.05	1.000	1.000	✓	✓	20	20	ES
31	19	9.3	9.3	4.00	7.00	10.03	1.000	1.000	✓	✓	20	20	ES

Theo = theoretical value Act = actual value measured by the instrument

Thermometer calibration:

Measured value (°C)

 thermometer no.: NBS ^{TX30} 1734 1195 1441 1615 2245 2211 2216 2218 2271

temperature 1 21.5 21.5 21.5 21.4 21.5 21.6 21.5 21.5 21.5 21.5 21.5

temperature 2 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9

Therm. # 1680 2121 2160 1622

temp. 1 21.5 21.5 21.5 21.5

temp. 2 1.9 2.0 1.9 1.9

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PRODUCT REGISTRATION LABORATORY EQUIPMENT INSPECTION LOG

Month December Year 1990

Day of Month	Measure and Record Temp. (°C)															By/Date
	Refrigerator Number (PRL#)					Incubator Number (PRL#)					F R #	C R	R T #			
	11	20				13	12	14			45	149	15			
1	2.7	2.9	/	/	/	2.9	20.6	22.7	/	/	-2	18.4	21.9	ES 12-1-90		
2	2.7	2.7	/	/	/	2.7	20.1	23.7	/	/	-3	19.2	21.2	ES 12-2-90		
3	2.7	3.6	/	/	/	2.0	20.7	23.8	/	/	-3	18.6	21.5	ES 12-3-90		
4	3.5	3.9	/	/	/	2.7	21.0	23.0	/	/	0	19.5	21.5	ES 12-4-90		
5	3.5	3.5	/	/	/	2.3	20.6	22.6	/	/	-2	19.7	21.3	ES 12-5-90		
6	3.6	2.4	/	/	/	3.7	19.8	22.7	/	/	-2	17.9	21.5	QW 12-6-90		
7	3.4	3.6	/	/	/	3.8	20.3	22.8	/	/	-1	18.5	21.7	QW 12-7-90		
8	3.6	3.3	/	/	/	3.9	20.1	22.6	/	/	0	18.6	21.2	QW 12-8-90		
9	3.4	3.5	/	/	/	3.5	20.2	22.6	/	/	0	18.7	21.3	QW 12-9-90		
10	2.1	3.2	/	/	/	2.5	19.7	22.4	/	/	-3	20.8	25.6	ES 12-10-90		
11	2.3	2.6	/	/	/	2.3	19.8	22.1	/	/	2	18.1	21.0	QW 12-11-90		
12	2.2	2.8	/	/	/	2.0	19.5	22.0	/	/	2	19.4	23.9	QW 12-11-90		
13	2.2	2.3	/	/	/	2.0	19.5	22.0	/	/	1	20.1	26.3	ES 12-13-90		
14	4.0	2.7	/	/	/	2.9	20.0	22.0	/	/	-3	19.8	25.7	ES 12-14-90		
15	2.3	2.7	/	/	/	2.0	21.0	23.8	/	/	-1	20.2	25.0	QW 12-15-90		
16	2.5	2.7	/	/	/	2.0	21.0	22.9	/	/	-1	20.0	22.2	QW 12-16-90		
17	2.0	2.9	/	/	/	2.9	19.6	22.9	/	/	-1	20.0	22.8	ES 12-17-90		
18	3.0	3.3	/	/	/	2.0	17.0	13.4	/	/	2	21.6	25.0	QW 12-18-90		
19	2.3	2.7	/	/	/	2.5	19.0	13.1	/	/	2	21.5	22.5	QW 12-19-90		
20	2.0	2.4	/	/	/	2.3	20.0	13.1	/	/	-2	21.4	22.7	ES 12-20-90		
21	2.0	3.0	/	/	/	2.5	19.9	13.1	/	/	-3	21.5	23.6	QW 12-21-90		
22	2.2	3.1	/	/	/	2.0	20.9	20.0	/	/	-2	21.6	22.8	ES 12-22-90		
23	2.4	3.2	/	/	/	2.0	20.7	20.1	/	/	-2	21.4	23.0	ES 12-23-90		
24	2.5	2.9	/	/	/	2.0	18.9	20.0	/	/	-3	21.9	23.2	ES 12-24-90		
25	2.2	3.0	/	/	/	2.0	18.9	19.9	/	/	1	21.5	22.8	ES 12-25-90		
26	2.3	3.5	/	/	/	2.0	18.7	19.6	/	/	-2	21.6	23.7	QW 12-26-90		
27	2.1	3.4	/	/	/	2.0	20.3	19.0	/	/	1	20.8	24.5	QW 12-27-90		
28	2.3	2.2	/	/	/	2.0	20.5	20.0	/	/	-3	20.7	25.4	QW 12-28-90		
29	2.4	3.1	/	/	/	2.4	19.9	19.7	/	/	-4	21.1	23.2	QW 12-29-90		
30	2.4	2.8	/	/	/	2.8	20.5	19.9	/	/	2	21.9	22.5	QW 12-30-90		
31	2.5	3.6	/	/	/	2.5	20.5	19.9	/	/	-1	21.9	22.7	ES 12-31-90		

EQUIPMENT CODES

RT = room temperature sample storage area
CR = culture room
FR = freezer

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RAI

9071-3

Resource Analysts, Inc.
Subsidiary of MILLIPORE
P.O. Box 778, One Lafayette Road
Hampton, N.H. 03842
(603) 926-7777

Mr. Timothy Ward
EnviroSystems, Incorporated
P.O. Box 778
Hampton, NH 03842

P.O. Number: 2597
Date Received: 08/29/90 (1320)
Lab Number: 23,394
Date Reported: 10/10/90

Attached please find test results for ammonia, total organic carbon, aluminum, arsenic, boron, cadmium, chromium, cobalt, copper, iron, lead, mercury, nickel, silver, zinc, fluoride, total suspended solids, pesticides/PCB's.

Samples were received in acceptable condition.

All samples were prepared and analyzed within the holding times specified in the referenced methods.

Instrumentation used for analysis was calibrated and/or tuned with the appropriate frequency and to the appropriate specifications required by the referenced methods.

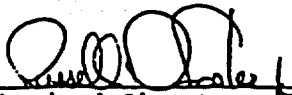
Blank contamination was not observed at levels affecting the analytical results.

Matrix effects, as monitored by matrix spike recovery, unusual physical properties and/or surrogate analyte recovery, were not apparent.

Accuracy and precision, as monitored by laboratory control sample analyses, were within laboratory acceptance limits.

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Authorized Signature

10/10/90

Date

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Field Identification: 2597-7
Laboratory Number: 23394-7

Matrix: Water

<u>Parameter</u>	<u>Concentration</u>	<u>Date Analyzed</u>	<u>Method/Ref.</u>
Total Suspended Solids (mg/L)	<10	08/30/90	160.2/1

Field Identification: 2597-8
Laboratory Number: 23394-8

Matrix: Water

<u>Parameter</u>	<u>Concentration</u>	<u>Date Analyzed</u>	<u>Method/Ref.</u>
Ammonia (mg/L as N)	<0.2	09/04/90	350.2/1

Field Identification: 2597-9
Laboratory Number: 23394-9

Matrix: Water

<u>Parameter</u>	<u>Concentration</u>	<u>Date Analyzed</u>	<u>Method/Ref.</u>
Total Organic Carbon (mg/L)	<1.0	08/30/90	415.1/1

Field Identification: 2597-10
Laboratory Number: 23394-10

Matrix: Water

<u>Parameter</u>	<u>Concentration</u>	<u>Date Analyzed</u>	<u>Method/Ref.</u>
Aluminum, total (mg/L)	0.04	09/07/90	3010,6010/2
Arsenic, total (mg/L)	<0.002	09/03/90	7060/2
Boron, total (mg/L)	0.1	09/07/90	3010,6010/2
Cadmium, total (mg/L)	0.0005	09/29/90	3010,6010/2
Chromium, total (mg/L)	<0.002	09/07/90	3010,6010/2
Cobalt, total (mg/L)	<0.008	09/07/90	3010,6010/2
Copper, total (mg/L)	<0.005	09/07/90	3010,6010/2
Iron, total (mg/L)	0.03	09/07/90	3010,6010/2
Lead, total (mg/L)	0.003	09/03/90	3020,7421/2
Mercury, total (mg/L)	0.0002	08/31/90	7470/2
Nickel, total (mg/L)	<0.008	09/07/90	3010,6010/2
Silver, total (mg/L)	<0.0005	09/28/90	3010,6010/2
Zinc, total (mg/L)	<0.005	09/07/90	3010,6010/2

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Field Identification: 2597-11
Laboratory Number: 23394-11

Matrix: Water

<u>Parameter</u>	<u>Concentration</u>	<u>Date Analyzed</u>	<u>Method/Ref.</u>
Fluoride (mg/L)	0.10	08/30/90	340.2/1

Field Identification: 2597-14
Laboratory Number: 23394-14

Matrix: Water

<u>Parameter</u>	<u>Concentration</u>	<u>Date Analyzed</u>	<u>Method/Ref.</u>
Total Suspended Solids (mg/L)	<10	08/30/90	160.2/1

Field Identification: 2597-15
Laboratory Number: 23394-15

Matrix: Water

<u>Parameter</u>	<u>Concentration</u>	<u>Date Analyzed</u>	<u>Method/Ref.</u>
Ammonia (mg/L as N)	<0.2	09/04/90	350.2/1

Field Identification: 2597-16
Laboratory Number: 23394-16

Matrix: Water

<u>Parameter</u>	<u>Concentration</u>	<u>Date Analyzed</u>	<u>Method/Ref.</u>
Total Organic Carbon (mg/L)	<2.0	08/30/90	415.1/1

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Laboratory number: 23394 -012
Sample Designation: 2597-12
Date Analyzed: 09/08/90
Matrix: WATER

PESTICIDES/PCB'S	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
ALDRIN	BDL	0.06
ALPHA-BHC	BDL	0.06
BETA-BHC	BDL	0.06
GAMMA-BHC	BDL	0.06
DELTA-BHC	BDL	0.06
CHLORDANE	BDL	.6
4,4'-DDT	BDL	.1
4,4'-DDE	BDL	0.06
4,4'-DDD	BDL	.1
DIELDRIN	BDL	0.06
ENDOSULFAN I	BDL	0.06
ENDOSULFAN II	BDL	.1
ENDOSULFAN SULFATE	BDL	.1
ENDRIN	BDL	0.06
ENDRIN ALDEHYDE	BDL	.1
HEPTACHLOR	BDL	0.06
HEPTACHLOR EPOXIDE	BDL	0.06
PCB-1242	BDL	.6
PCB-1254	BDL	.6
PCB-1221	BDL	.6
PCB-1232	BDL	.6
PCB-1248	BDL	.6
PCB-1260	BDL	.6
PCB-1016	BDL	.6
TOXAPHENE	BDL	2
ENDRIN KETONE	BDL	.1
METHOXYCHLOR	BDL	.6

METHOD REFERENCE: 40 CFR PART 136, FRIDAY, OCTOBER 26, 1984
METHOD 608

BDL = Below detection limit

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001679

Laboratory Number: 23394-13
Sample Designation: 2597-13
Date Extracted: 09/11/90
Date Analyzed: 10/04/90
Matrix: WATER

PESTICIDES	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
AZINPHOS METHYL	BDL	1.5
BOLSTAR	BDL	0.15
CHLORPYRIFOS	BDL	0.3
COUMAPHOS	BDL	1.5
DEMETON-O	BDL	0.25
DEMETON-S	BDL	0.25
DIAZINON	BDL	0.6
DICHLORVOS	BDL	0.1
DISULFOTON	BDL	0.20
ETHOPROP	BDL	0.25
FENSULFOTHION	BDL	1.5
FENTHION	BDL	0.10
MERPHOS	BDL	0.25
MEVINPHOS	BDL	0.3
NALED	BDL	0.1
PARATHION METHYL	BDL	0.03
PHORATE	BDL	0.15
RONNEL	BDL	0.3
STIROPPOS (TETRACHLORVINPHOS)	BDL	5.0
TOKUTHION (PROTHIOFOS)	BDL	0.5
TRICHLORONATE	BDL	0.15

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: US EPA METHOD 8140

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001680

Resource Analysts, Inc / EnviroSystems Division
Product Registration Laboratory

CHAIN OF CUSTODY FORM

Study Number: 2597	Study Name: Quarterly Water Quality																										
Date Sampled: 8-29-90	Sampled By: PK																										
Notes: See attached Detection Limits																											
Sample Identification	Number and Size of Containers	Remarks	RAI Sample Number																								
2597 -1	1 500ml glass	Ammonia Soft Well	23394-1																								
" -2	1 250ml glass	TOC "	2																								
" -3	1 500ml plastic	metals "	3																								
" -4	1 500ml plastic	Fluoride "	4																								
" -5	1 1L glass	organochlorine pests + PCBs "	5																								
" -6	1 1L glass	organophosphorus pests "	6																								
" -7	1 125ml plastic	TSS "	7																								
" -8	1 500ml glass	Ammonia Well	8																								
" -9	1 250ml glass	TOC "	9																								
" -10	1 500ml plastic	metals "	10																								
" -11	1 500ml plastic	Fluoride "	11																								
" -12	1 1L glass	organochlorine pests + PCBs "	12																								
" -13	1 1L glass	organophosphorus pests "	13																								
" -14	1 125ml plastic	TSS "	14																								
<table border="1"> <tr> <td>Relinquished by</td> <td>Date</td> <td>Time</td> <td>Received by</td> <td>Date</td> <td>Time</td> </tr> <tr> <td>Pete Kowalski</td> <td>8-29-90</td> <td>1300</td> <td>DA Sells</td> <td>8-29-90</td> <td>1320</td> </tr> <tr> <td>Relinquished by</td> <td>Date</td> <td>Time</td> <td>Received by</td> <td>Date</td> <td>Time</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				Relinquished by	Date	Time	Received by	Date	Time	Pete Kowalski	8-29-90	1300	DA Sells	8-29-90	1320	Relinquished by	Date	Time	Received by	Date	Time						
Relinquished by	Date	Time	Received by	Date	Time																						
Pete Kowalski	8-29-90	1300	DA Sells	8-29-90	1320																						
Relinquished by	Date	Time	Received by	Date	Time																						

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90171-3

PRODUCT REGISTRATION LABORATORY SAMPLE RECEIVING LOG

1. RAI Sample Number 2696E
2. Sponsor Name and Address 3M Env. lab
Bldg. 23E-09, 935 Bush Ave.
St. Paul, MN 55106
3. Sponsor Sample Identification H 2864-6 FM 3820
4. Sample Container Label Data H 2864-6 FM 3820
5. Date Received 11-15-90 6. Date Photographed 032894-5PM
7. Method of Shipment Shipped From St. Paul MN
Via FedEx Weekday
8. Description of Shipping Container(s) 1 plastic cooler
(Number, Type, Size)
9. Description of Sample Containers(s) 1 250 ml glass bottle
(Number, Type, Size)
10. Sample Storage Location and Required Storage Conditions per-15 Perm temp
11. Signature Peter Kowalski Date 11-16-90
12. Notes _____
13. Date and Location of Archive Sample Removal and Storage Location 11-16-90 per-15

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001682

SOP DEVIATION

The photograph of the test substance does
not need to be taken at the time of sample
arrival

TW 7/30/90

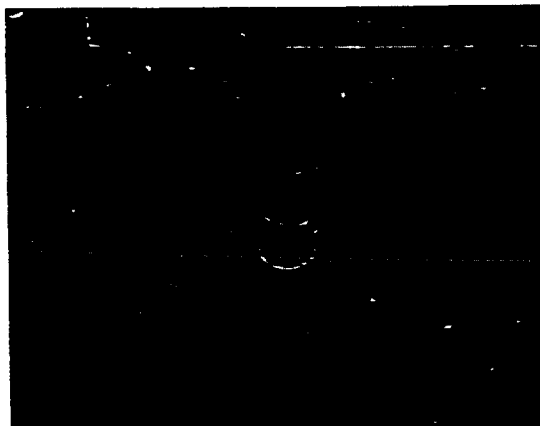
PJB 7-30-90

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H2864-6 FM 3820

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