

Effluent Quality Assessment

International Flavors and Fragrances

(IFF Chemical Holdings, Inc.)
(Formerly known as Bush, Boake Allen)

Duval County

NPDES #FL0001040

Sampled January 14, 2008

April 2008

Biology Section
Bureau of Laboratories
Division of Resource Assessment and Management

Quality Manual No. 870346G
NELAC Certification No. E31780

International Flavors and Fragrances (IFF Chemical Holdings, Inc.), 2051 N. Lane Ave., Jacksonville, Duval County, Florida, 32254, NPDES #FL0001040. Effluent samples for this facility were collected on January 14, 2008.

Introduction

International Flavor and Fragrances (IFF Chemical Holdings, Inc.) formerly known as Bush, Boake, and Allen, is an organic chemicals manufacturer. The facility's industrial wastewater treatment system has a design flow of 4.0 million gallons per day (MGD) and a daily average permitted flow of 2.34 MGD. The monthly average flow from January 2007 through December 2007 was 2.107 MGD. Wastewater generated at the facility includes non-contact cooling water, boiler blowdown, boiler-deionization reject water, and stormwater. Wastewater treatment is accomplished by retention ponds for stormwater and aeration for cooling water. Treated effluent is discharged through Outfall D-001 to the Class III freshwaters of Little Six Mile Creek. Outfall D-001 is located approximately at latitude 30º 20' 55" N, longitude 81º 44' 50" W.

The facility has no Administrative Orders or Consent Orders. The facility has no mixing zones. A review of Discharge Monitoring Report (DMR) data for the past year revealed no violations. The facility is required to prepare and follow a Best Management Practices Plan and to prepare a Waste Minimization Assessment Plan. (Facility information provided by Edward Jamro of FDEP Northeast District.)

Methods

Samples were collected from the EFF-1 NPDES sampling point for Outfall D-001 by Eesa Ali (FDEP Northeast District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOPs are available on the web at: http://www.floridadep.org/labs/qa/sops.htm.

See Appendix A for the completed chain of custody form.

The 48-hour screening toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_01, TA07_02, and TA08_01 through TA08_09. All internal DEP SOPs are available on the web at: http://www.floridadep.org/labs/cgi-bin/sop/biosop.asp.

Although the 48-hour acute screening toxicity test does not reflect the required permit conditions, passing test results provide confidence that the required permit conditions would likely be met.

Toxicity Test Results

Tests were performed January 15 - 17, 2008.

Ceriodaphnia dubia 48-hour acute screening bioassay –	LC_{50} > 100%, 0% mortality* in 100% sample at 48 hours
Pimephales promelas 48-hour acute screening bioassay –	LC_{50} > 100%, 5% mortality* in 100% sample at 48 hours

The bioassay sample was not acutely toxic to the test organisms.

See Appendix B for bioassay bench sheets. See Appendix C for results of the last 20 standard reference toxicant (SRT) tests** and the bench sheets and statistical analyses of the SRT tests that correspond to these facility tests. See Appendix D for test organism receipts.

*NOTE: In a 48-hour acute screening test of 100% effluent, mortality of <20% provides confidence that the effluent meets the acute toxicity criterion of Florida's Surface Water Quality Standards (Rule 62-302.500 (1)(a)4, F.A.C.). Mortality between 20-50% indicates low to moderate levels of toxicity, and further action may

be required. Mortality of >50% indicates that the effluent fails to meet the minimum requirement to discharge to waters of the state (Rule 62-4.244(3)(a), F.A.C.).

**NOTE: The acute standard reference toxicant (SRT) test for *Ceriodaphnia dubia* performed on 1/08/2008 was invalidated due to excessive mortality as was the follow-up SRT test performed on 1/14/2008. The control chart shows the results of the SRT performed on 1/22/2008.

Algal Growth Potential

The effluent Algal Growth Potential (AGP) was 10.4 mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Shultz (1987) found that AGP values above 5.0 mg dry weight/L represent a “problem” threshold for fresh receiving waters, implying nutrient enrichment. The analytical chemistry suggests that the effluent is nitrogen limited. The predicted AGP based on inorganic nitrogen concentrations was 4.2 (±20%) mg dry wt/L (Table 1; Miller et al. 1978).

See Table 1 for AGP results.

Chemistry Results

Total residual chlorine and total ammonia were not detected in the bioassay sample in the laboratory. The total ammonia concentration in the sample collected and preserved for chemical analysis was 0.095 mg/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was < 0.02 mg/L.

The effluent dissolved oxygen (DO) as measured in the field (2.2 mg/L) violated the DO criteria for Class III freshwaters (≥ 5.0 mg/L; 62-302.530(30), F.A.C.).

Copper was detected in the effluent at a level that complies with Class III fresh water quality criteria (62-302.530, F.A.C.). Iron and nickel were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

See Table 2 for results of analytes detected in the effluent, and corresponding limits. See Appendix E for a complete list of chemical analyses performed.

Conclusion

The effluent sample collected from EFF-1 NPDES sampling point for Outfall D-001 for this facility on January 14, 2008, was not acutely toxic to either test species during the 48-hour acute screening bioassays. The effluent AGP result exceeded the "problem” threshold for fresh receiving waters. The effluent dissolved oxygen (DO) (2.2 mg/L) violated the DO criteria for Class III freshwaters (≥ 5.0 mg/L; 62-302.530(30), F.A.C.).

Literature Cited

Miller, W. E., T. E. Maloney, and J. C. Greene. 1978. The *Selenastrum capricornutum* Printz algal assay bottle test. EPA-600/9-78-018. U. S. EPA, Cincinnati, Ohio. 126 p.

Raschke, R. L. and D. A. Schultz. 1987. The use of the algal growth potential test for data assessment. J. Wat. Poll. Cont. Fed. 59(4): 222-227.

Table 1. ***Measured and predicted algal growth potential (AGP; mg dry weight/L) for total soluble inorganic nitrogen (TSIN) and total nitrogen (TN) limitation of the freshwater species*** **Pseudokirchneriella subcapitata** ***and ratios of nitrogen to phosphorus for samples collected from the IFF Chemical Holdings, Inc., facility on January 14, 2008.***

IFF Chemical Holdings, Inc.					
Location	**AGP (measured)**	**Predicted AGP (TSIN) ± 20%**	**Predicted AGP (TN) ± 20%**	**Inorganic N:P ratio**	**Total N:P ratio**
Effluent	10.4	4.2 ± 0.8	9.0 ± 1.8	0.7	1.1

Table 2. Effluent limits, Class III Freshwater Criteria and chemical and microbiological data for samples collected from the IFF Chemical Holdings, Inc., facility on January 14, 2008.

IFF Chemical Holdings, Inc. NPDES# FL0001040	Class III Criteria	Effluent Limits	Effluent	
Organic Constituents (µg/L)				
None Detected	-		-	
Metals (µg/L unless otherwise noted)				
Aluminum	-	-	60	U
Arsenic	≤ 50	-	0.5	U
Cadmium	≤ 0.6 b	-	0.02	U
Calcium (mg/L)	-	-	70.9	
Chromium-III	≤ 206.8 b	≤ 206.8 sb	1	U
Copper	≤ 23.2 b	-	2.2	
Iron	≤ 1,000	≤ 1,000 s	100	I
Lead	≤ 12.4 b	-	0.2	U
Magnesium (mg/L)	-	-	27.7	
Nickel	≤ 128.8 b	-	0.41	I
Selenium	≤ 5.0	-	0.5	U
Silver	≤ 0.07	-	0.025	U
Zinc	≤ 296.3 b	≤ 296.3 sb	5	U
Nutrients (mg/L)				
Ortho-phosphate	-	-	0.17	
Total Phosphorus	-	Report **	0.22	
Total Ammonia	-	-	0.093	
Un-ionized Ammonia	≤ 0.02 s	-	≤ 0.02	c
Nitrate and Nitrite	-	-	0.018	F
Total Kjeldahl Nitrogen	-	-	0.22	I
Organic Nitrogen	-	-	0.127	c
Total Nitrogen	-	-	0.238	c
Total Organic Carbon	-	Report p	1.8	I
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 5.0	-	2.2	
pH (SU)	6.0 - 8.5	6.0 - 8.5 s	8.3	
Conductivity (µmhos/cm)	≤ 1,275	-	751	
Temperature °C	-	≤ 38 s	29.4	
Sample Depth (m)	-	-	0.2	
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01 s	< 0.03	£
Chlorophyll a (µg/L)	-	-	0.62	I
Phaeophytin (µg/L)	-	-	0.24	U
Total Suspended Solids (mg/L)	-	Report **	-	
Chemical Oxygen Demand (mg/L)	-	Report p	29	
BOD, 5 day (mg/L), N - uninhibited	-	Report **	-	
Oils and Greases (mg/L)	≤ 5	≤ 5	1.7	UY
Flow (MGD)	-	≤ 2.34 m	2.107	m
Hardness (mg $CaCO_3$)	-	Report **	291.11	c
Microbiology (Number of colony forming units/100ml)				
Fecal Coliforms	≤ 800 s		2	AB

Value exceeds the Class III Water Quality Criteria or permit limits

b - Value is calculated based on hardness
c - Value is calculated
m - Monthly average
p - Flow proportioned composite sample
s - Single sample
A - Value reported is the mean of two or more determinations
B - Results based on colony counts outside the acceptance range
F - Analyte was detected in both sample and equipment blank
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
U - Material analyzed for but not detected; value reported is the method detection limit
Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
** - Monitored only when Stormwater is being discharged through Outfall D-001
£ - Analyses performed in bioassay laboratory

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Request Number: RQ-2008-01-14-22
International Flavors & Fragances

Event ID *

Requester: Jennifer Paris
Field Report Prepared By: GA
Collected By: GA
Send Final Report To Tom Kallemeyn
Sampling Agency: DEP

Customer: NE-DIST
Project ID: FYI5
PMAS: 1143

Lab ID *	Location: IFF EFF-1	☐ Comp ☑ Grab	Collection (begin) Date 1/14/08 Time 1020 Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)** A x20		
	Field ID: FL 0001040	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L): 2.17	Storet Station Number			
	Matrix (Include type e.g. Salt, Fresh, etc	Temp (C): 29.42	pH: 8.32	Sample Depth ☑ m ☐ ft: 0.2	☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm): 751	NPDES Number: FL0001040	
	Latitude o ' "	Longitude o ' "	Comments				
Lab ID *	Location: Blank	☐ Comp ☑ Grab	Collection (begin) Date 1/14/08 Time 1020 Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)** D x10		
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number			
	Matrix (Include type e.g. Salt, Fresh, etc	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude o ' "	Longitude o ' "	Comments				
Lab ID *	Location	☐ Comp ☐ Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**		
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number			
	Matrix (Include type e.g. Salt, Fresh, etc	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude o ' "	Longitude o ' "	Comments				
Lab ID *	Location	☐ Comp ☐ Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**		
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number			
	Matrix (Include type e.g. Salt, Fresh, etc	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude o ' "	Longitude o ' "	Comments 2 bottles 1:33 415.08 for J.D				

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	1/14/08	DHL	ABS	1-15-08 0850				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

FDEP Biology Laboratory - Acute Screen Bioassay Bench Sheets

Facility: International Flavors Fragrances

Address: 2051 N. Lane Ave

City: Jacksonville County: Duval

Contact/District: EESA Ali / Northeast

NPDES Permit #: FL 0001040

LIMS Job #: TLH-2008-01-15-11-01 LIMS Sample #: 1076556

Lims Data Entry: 1-17-08 MF Data Entry Verification: BA 1-17-08

Sample Collection: Date: 1.14.2008 Time: 1030

Hold Time Start: Date: 1.14.08 Time: 1120

Comments:

Instructions (for below): Circle appropriate wording. If yes is circled, complete blanks.

Test Type: (Screen)
Static / Static Renewal / Flow-through
Test Duration: (48) 96 Hours.

Test 1 validation: Test 1: SOP TA 07_01
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: Yes No

Test 2 validation: Test 2: SOP TA 07_02
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: Yes No

Initial sample handling:

PH adjustment: yes (no) Initial pH: ____ NaOH N HCl N ____ Drops mL Final pH: ____
Aeration: yes (no) Initial DO: ____mg/L Final DO: ____mg/L Duration: ____minutes Rate: ~____bubbles/min
Salinity adjusted (Test 1): yes (no) Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine
Salinity adjusted (Test 2): yes (no) Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine
Dechlorination: yes (no) ____mL of 0.025N Sodium Thiosulfate per liter of sample. Final TRC: ____

Light Intensity: 50 - 100 fL candles
Photoperiod: 16 light 8 dark
Temperature Range °C:
Incubator # 2 min 25.8 max 26.3 mean 26.1
Incubator # ____ min. ____ max. ____ mean ____
Room B246 min. 23.2 max. 24.4 mean 23.8

Sample Validation:

Temperature: Shipped ≤6°C (Yes) No Hand Delivered: Cooling (received °C < collected °C) Yes No
Holding Time: ≤36 Hours (Yes) No (Composite-end of collection; grab-when collected; 4 in 24 - time last sample collected)

Investigators' Signatures

James Daniels
Blair Nash
Marshall Faircloth

Loretta C. Wright
REVIEWER

Water Quality Parameters	20% DMW	Moderately Hard Water/ Well Water	Salt Water ASW NSW Test 1	Salt Water ASW NSW Test 2	Other:	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl_2 (mg/L):	N/A	N/A	N/A	N/A		—	Not measured		MF
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03				<0.03	HACH	JD	BA
Alkalinity (mg/L as $CaCO_3$):	148	97				148	HACH	BA	JD
Hardness (mg/L as $CaCO_3$):	297	103				297	HACH	BA	JD
Total Ammonia (mg/L as N):	<0.017	<0.017				<0.017	DENVER	MF	JD
Salinity (ppth):	N/A	N/A				N/A	YSI / Mettler	JD	JD

V 1.4 9/12/05

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample #: 1070556 Test #: 1/2 SOP#:TA 07 01 Test Started: Date 1-15-08 Time: 12:00

Organism/Batch/Age: C.dubia/1-08/<24hr Test Ended: Date 1-17-08 Time: 10:00

Chamber/Test Volume: 30 / 20 ml Diluent/ Batch: DMW 1-10-08

Food/Batch: YCT 7-26-07 P.sub 7-26-07 Artemia 0hr — 24hr — 48hr — 72hr — Artemia Lot# —

Feeding: (Prior to Test) Prior to Renewal Daily

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
ctrl	A	A	5	5	5			
	B	B	5	5	5			
	C	C	5	5	5			
	D	D	5	5	5			
100%	A	A	5	5	5			
	B	B	5	5	5			
	C	C	5	5	5			
	D	D	5	5	5			
Loaded/Verified by: BA/JJ		Checked by:	BA	BA	BA			

m = missing d = dead BR/AR = Before/After Renewal

Comments:

Test Results:

Screening Tests: Report LC50 as >100%, =100%, or <100%.

% mortality in 100% sample: 0% LC50: >100%

If Calculated: 95% CI________ Method________

Substitue highest test concentration used if other than 100% (example: Ocean outfall tested at 30% concentration).

PAGE 000012

V 2.1 11/01/2005

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample #: 1070556 Test #: 2/2 SOP#:TA 07 02 Test Started: Date 1.15.08 Time: 1130
Organism/Batch/Age: P.promelas/1.15.08/7days Test Ended: Date 1.17.08 Time: 1100
Chamber/Test Volume: 1000 / 500 ml Diluent/ Batch: Amended / 1.4.08
Food/Batch: YCT — P.sub — Artemia 0hr 5-05 24hr — 48hr — 72hr — Artemia Lot# 95L-536-90
Feeding: Prior to Test Prior to Renewal Daily

Concentration	Replicate	Chamber #	Test Hour					
			0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	D1	5	5	5			
	B	D2	5	5	5			
	C	D3	5	4 1D	4			
	D	D4	5	5	5			
100%	A	D5	5	5	4 1D			
	B	D6	5	5	5			
	C	D7	5	5	5			
	D	D8	5	5	5			
Loaded/Verified by: JD / MF		Checked by:	JD	JD	JD			

m = missing d = dead BR/AR = Before/After Renewal

Comments:

Test Results:

Screening Tests: Report LC50 as >100%, =100%, or <100%.

% mortality in 100% sample: 5% LC50: >100%

If Calculated: 95% CI______ Method______

Substitue highest test concentration used if other than 100% (example: Ocean outfall tested at 30% concentration).

PAGE V 2.1 11/01/2005

000013

FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 1076556 **Test #:** 1 of 2

TEST SOP #: TA07_01 **Test Species:** (*Ceriodaphnia dubia*) *Cyprinella leedsi* *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:_____

Concentration Ctl	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		A			
pH (S.U.)	7.9		8.1			
Temperature °C	24.0		24.0			
Dissolved Oxygen mg/L	7.7		7.7			
Conductivity (µmhos) mmhos	171		188			
(initials) Measured by:	BA		BA			
(initials) Recorded by:	BA		BA			

Comments: Replicate "M" is Meter Vial

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		A			
pH (S.U.)	8.4		8.3			
Temperature °C	24.0		24.2			
Dissolved Oxygen mg/L	7.3		7.8			
Conductivity (µmhos) mmhos	707		751			
(initials) Measured by:	BA		BA			
(initials) Recorded by:	BA		BA			

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

000014

V 2.0 2/24/04

FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 1076556 **Test #:** 2 of 2

TEST SOP #: TA07_02 **Test Species:** *Ceriodaphnia dubia* *Cyprinella leedsi* ~~*Pimephales promelas*~~ *Americamysis bahia* *Menidia beryllina* Other:_____

Concentration Ctrl	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	8.1	8.1	8.0			
Temperature °C	25.0	24.2	24.0			
Dissolved Oxygen mg/L	8.1	7.9	7.9			
Conductivity ~~µmhos~~ mmhos	326	331	347			
(initials) Measured by:	JD	JD	JD			
(initials) Recorded by:	JD	JD	JD			

Comments:

Concentration 10000	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	8.3	8.4	8.4			
Temperature °C	25.0	24.1	24.3			
Dissolved Oxygen mg/L	7.9	7.2	7.9			
Conductivity ~~µmhos~~ mmhos	712	713	742			
(initials) Measured by:	JD	JD	JD			
(initials) Recorded by:	JD	JD	JD			

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

000015

V 2.0 2/24/04

Appendix C. SRT Bench Sheets and Statistical Analysis

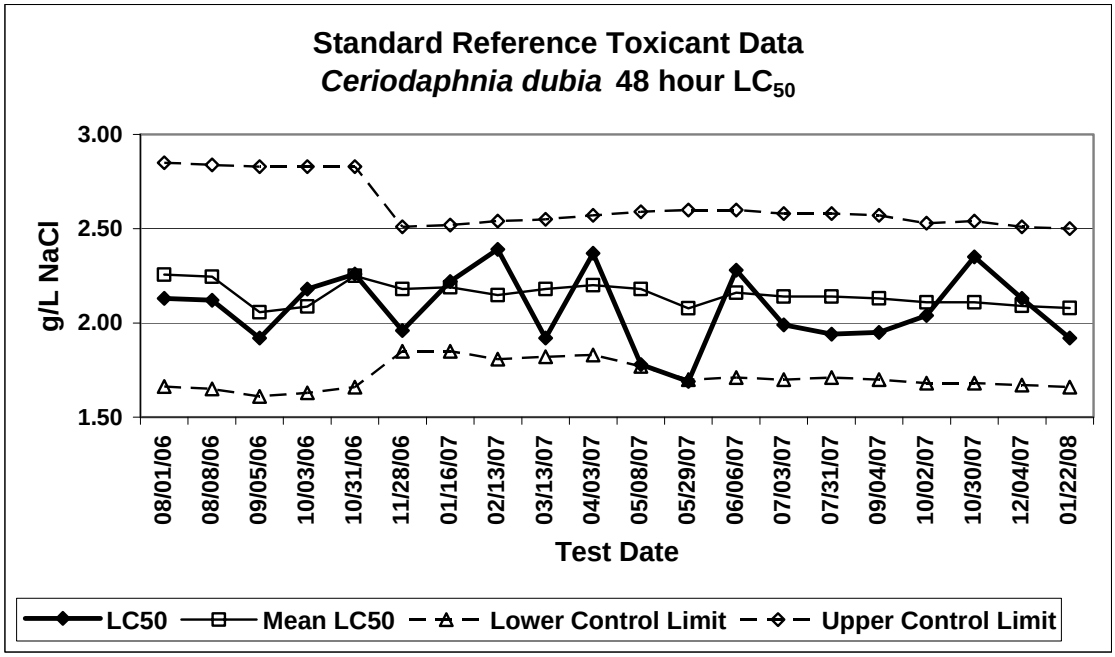
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 48-hour Acute Toxicity
Ceriodaphnia dubia (water flea) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
08/01/06	2.13	2.26	0.30	1.66	2.85
08/08/06	2.12	2.24	0.30	1.65	2.84
09/05/06	1.92	2.06	0.30	1.61	2.83
10/03/06	2.18	2.09	0.30	1.63	2.83
10/31/06	2.26	2.25	0.29	1.66	2.83
11/28/06	1.96	2.18	0.17	1.85	2.51
01/16/07	2.22	2.19	0.17	1.85	2.52
02/13/07	2.39	2.15	0.17	1.81	2.54
03/13/07	1.92	2.18	0.18	1.82	2.55
04/03/07	2.37	2.20	0.18	1.83	2.57
05/08/07	1.78	2.18	0.21	1.77	2.59
05/29/07	1.69	2.08	0.23	1.70	2.60
06/06/07	2.28	2.16	0.22	1.71	2.60
07/03/07	1.99	2.14	0.22	1.70	2.58
07/31/07	1.94	2.14	0.22	1.71	2.58
09/04/07	1.95	2.13	0.22	1.70	2.57
10/02/07	2.04	2.11	0.21	1.68	2.53
10/30/07	2.35	2.11	0.21	1.68	2.54
12/04/07	2.13	2.09	0.21	1.67	2.51
01/22/08	1.92	2.08	0.21	1.66	2.50

Means are of the last 20 SRT tests.
Lower Control Limit = mean - 2 * Std Dev
Upper Control Limit = mean + 2 * Std Dev

CV = 10.11
EPA reference 75th quartile CV = 29%



Appendix C. (continued)

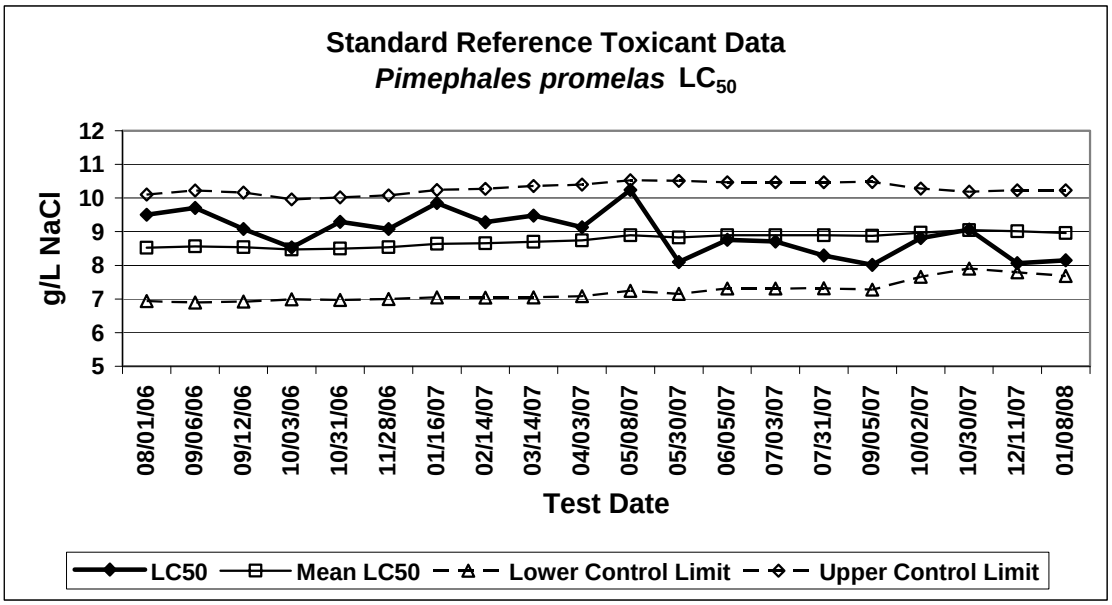
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 48-hour Acute Toxicity
Pimephales promelas (fathead minnow) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
08/01/06	9.50	8.52	0.79	6.94	10.10
09/06/06	9.71	8.56	0.83	6.90	10.22
09/12/06	9.08	8.54	0.81	6.92	10.16
10/03/06	8.53	8.47	0.74	6.99	9.96
10/31/06	9.29	8.50	0.76	6.97	10.02
11/28/06	9.08	8.54	0.77	7.00	10.08
01/16/07	9.85	8.64	0.80	7.05	10.24
02/14/07	9.28	8.66	0.81	7.04	10.27
03/14/07	9.48	8.70	0.83	7.05	10.36
04/03/07	9.13	8.74	0.83	7.08	10.40
05/08/07	10.24	8.89	0.82	7.24	10.53
05/30/07	8.10	8.83	0.84	7.15	10.51
06/05/07	8.76	8.89	0.79	7.31	10.47
07/03/07	8.71	8.89	0.79	7.31	10.47
07/31/07	8.29	8.89	0.79	7.32	10.47
09/05/07	8.01	8.88	0.80	7.28	10.48
10/02/07	8.81	8.97	0.66	7.66	10.28
10/30/07	9.06	9.05	0.57	7.90	10.19
12/11/07	8.06	9.01	0.61	7.79	10.23
01/08/08	8.15	8.96	0.64	7.68	10.23

Means are of the last 20 SRT tests.
Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev

CV = 7.11
EPA reference 75th quartile CV = 19%



Appendix C. (continued)

FDEP Biology Laboratory - Acute SRT Bench Sheet

Test Organism: *Americamysis bahia* Method 2007.0; *Menidia beryllina* Method 2006.0; *Hyalella azteca* Method 100.1 EPA-600-R-99-064; (*Ceriodaphnia dubia* Method 2002.0); *Cyprinella leedsi* Method 2000.0; *Pimephales promelas* Method 2000.0; Other: _____

Method from EPA-821-R-02-012

Test Type: 48 hour non-renewal; (96 hour renewal)

Test Page 1 of 2

Diluent/ Batch #: DMW 1-10-08

Toxicant/ Batch#: NaCl 1-22-08

Test Beginning: Date: 1-22-08 Time: 12:50

Test Ending: Date: 1-26-08 Time: 12:30

Water Quality Parameters	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	JJ
Alkalinity (mg/L as $CaCO_3$):	93	Hach	BA
Hardness (mg.L as $CaCO_3$):	98	Hach	BA
Total Ammonia (mg/L as N):	0.017	Denver	MP
Salinity (ppth):	<7	Mettler	BA

Organism Batch #/ Age: 3-081 <24hrs

Feeding: (Prior to test) Prior to renewal / Daily

Food: (YCT) *S.subcapitata* Artemia: Lot # —

Food Batch: 7-26-07 7-26-07 0hr — 24hr — 48hr — 72hr —

Chamber size: 30 mL

Test volume: 20 mL per replicate

Conc. (g/L) µg/L mg/L	Rep.	Chamber #	Number Live 0 hr / 48 hr	Number Live 24 hr / 72 hr	Number Live 48 hr / 96 hr	pH (SU) 0 hr / 48 hr	pH (SU) 24 hr / 72 hr	pH (SU) 48 hr / 96 hr	Temperature (°C) 0 hr / 48 hr	Temperature (°C) 24 hr / 72 hr	Temperature (°C) 48 hr / 96 hr	D.O. (mg/L) 0 hr / 48 hr	D.O. (mg/L) 24 hr / 72 hr	D.O. (mg/L) 48 hr / 96 hr	Uncorrected Conductivity µmhos/cm (mmhos/cm) 0 hr / 48 hr	Uncorrected Conductivity 24 hr / 72 hr	Uncorrected Conductivity 48 hr / 96 hr
Control	A	A	5	5	5	8.0		8.0	24.0		24.0	7.9		7.5	0.177		0.185
	B	B	5	5	5												
	C	C	5	5	5												
	D	D	5	5	5												
1.5	A	A	5	5	5	8.0		8.0	24.0		24.0	7.7		7.4	2.86		3.23
	B	B	5	5	5												
	C	C	5	5	5												
	D	D	5	5	5												
2.0	A	A	5	5	2 3D	8.0		8.1	24.0		24.0	7.6		7.3	3.81		3.95
	B	B	5	4 1D	2 2D												
	C	C	5	5	3 2D												
	D	D	5	3 2D	1 2D												
2.5	A	A	5	5	0 5D	8.0		8.1	24.0		24.0	7.6		7.4	4.65		5.0
	B	B	5	4 1D	0 4D												
	C	C	5	4 1D	0 4D												
	D	D	5	1 4D	0 1D												
3.0	A	A	5	2 3D	0 2D	8.0		8.1	24.0		24.0	7.7		7.3	5.42		5.86
	B	B	5	2 3D	0 2D												
	C	C	5	2 3D	0 2D												
	D	D	5	2 3D	0 2D												
4.0	A	A	5	0 5D	—	8.0		8.0	24.0		24.0	7.6		7.3	7.21		8.74
	B	B	5	0 5D	—												
	C	C	5	1 4D	0 1D												
	D	D	5	0 5D	—												
	A																
	B																
	C																
	D																
Loaded / measured by:			BA	BA	BA	BA		BA	BA		BA	BA		BA	BA		BA
Recorded by:			BA	BA	BA	BA		BA	BA		BA	BA		BA	BA		BA

Investigators' Signatures

Concentrations prepared by: BA

Loading verified by: JJ

Light Intensity: 50-100 Ft. candles

Photoperiod: 16 hours Light / 8 hours dark

Temperature Range °C:

Incubator # 2 min. 25.6 max. 26.4 mean 26.0

Incubator # ___ min. ___ max. ___ mean ___

Room B246 min. 23.0 max. 24.8 mean 23.9

REVIEWER

Comments:

Statistics: Method: Spearman-Karber

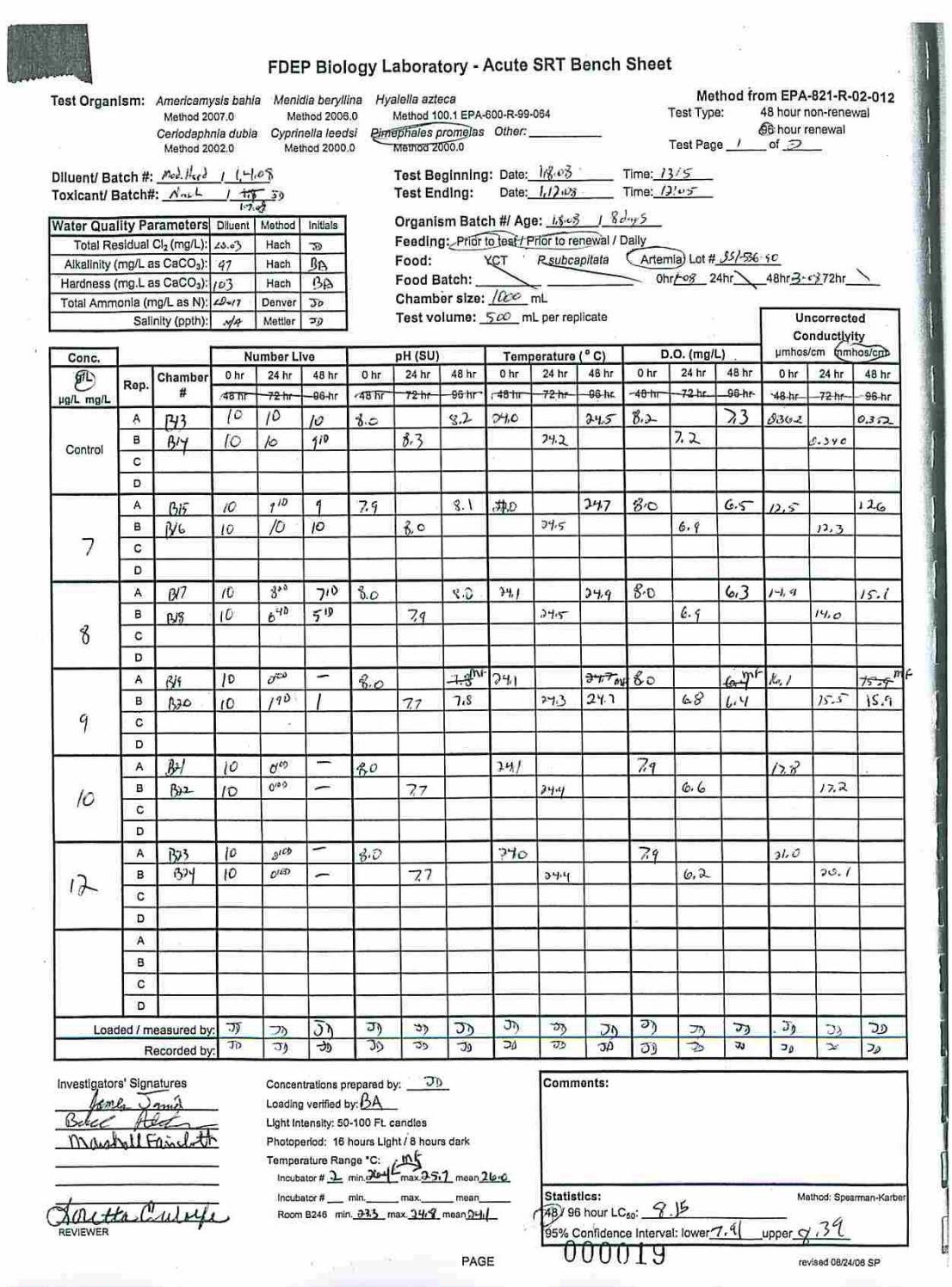
(48) 96 hour LC_{50}: 1.92

95% Confidence Interval: lower 1.81 upper 2.03

PAGE 000027

revised 08/24/06 SP

Appendix C. (continued)



FDEP Biology Laboratory - Acute SRT Bench Sheet

Test Organism: *Americamysis bahia* Method 2007.0; *Menidia beryllina* Method 2006.0; *Hyalella azteca* Method 100.1 EPA-600-R-99-064; *Ceriodaphnia dubia* Method 2002.0; *Cyprinella leedsi* Method 2000.0; *Pimephales promelas* Method 2000.0; Other: _____

Method from EPA-821-R-02-012
Test Type: 48 hour non-renewal / 96 hour renewal
Test Page 1 of 2

Diluent/ Batch #: Mod. Hard / 1.4.08
Toxicant/ Batch#: NaCl / 1.7.08 39

Test Beginning: Date: 1.8.08 Time: 1315
Test Ending: Date: 1.12.08 Time: 1315

Water Quality Parameters	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	20.03	Hach	JD
Alkalinity (mg/L as $CaCO_3$):	97	Hach	BA
Hardness (mg.L as $CaCO_3$):	103	Hach	BA
Total Ammonia (mg/L as N):	20.17	Denver	JD
Salinity (ppth):	n/a	Mettler	JD

Organism Batch #/ Age: 1.8.08 / 8 days
Feeding: Prior to test / Prior to renewal / Daily
Food: YCT *R.subcapitata* Artemia Lot # 351-536 90
Food Batch: _____ 0hr 1-08 24hr 48hr 1-08 72hr
Chamber size: 1000 mL
Test volume: 500 mL per replicate

Conc. µg/L mg/L	Rep.	Chamber #	Number Live 0 hr (48 hr)	24 hr (72 hr)	48 hr (96 hr)	pH (SU) 0 hr (48 hr)	24 hr (72 hr)	48 hr (96 hr)	Temperature (°C) 0 hr (48 hr)	24 hr (72 hr)	48 hr (96 hr)	D.O. (mg/L) 0 hr (48 hr)	24 hr (72 hr)	48 hr (96 hr)	Uncorrected Conductivity µmhos/cm (mmhos/cm) 0 hr (48 hr)	24 hr (72 hr)	48 hr (96 hr)
Control	A	B13	10	10	10	8.0		8.2	24.0		24.5	8.2		7.3	53.62		0.352
	B	B14	10	10	10		8.3			24.2			7.2			5.340	
	C																
	D																
7	A	B15	10	10	9	7.9		8.1	24.0		24.7	8.0		6.5	12.5		12.6
	B	B16	10	10	10		8.0			24.5			6.9			12.3	
	C																
	D																
8	A	B17	10	8 10	7 10	8.0		8.0	24.1		24.9	8.0		6.3	14.9		15.1
	B	B18	10	6 10	5 10		7.9			24.5			6.9			14.0	
	C																
	D																
9	A	B19	10	0 00	—	8.0		7.8 hr	24.1		24.7 hr	8.0		6.4 hr	14.1		15.9 hr
	B	B20	10	1 00	1		7.7	7.8		24.3	24.7		6.8	6.4		15.5	15.9
	C																
	D																
10	A	B21	10	0 00	—	8.0			24.1			7.9			12.8		
	B	B22	10	0 00	—		7.7			24.4			6.6			12.2	
	C																
	D																
12	A	B23	10	0 00	—	8.0			24.0			7.9			21.0		
	B	B24	10	0 00	—		7.7			24.4			6.2			20.1	
	C																
	D																
	A																
	B																
	C																
	D																
Loaded / measured by:			JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD
Recorded by:			JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD	JD

Investigators' Signatures
Pamela Tomlin
Becca Alexander
Marshall Faircloth
Martha Carlisle
REVIEWER

Concentrations prepared by: JD
Loading verified by: BA
Light Intensity: 50-100 FL candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.4 max. 25.7 mean 26.0
Incubator # ___ min. _____ max. _____ mean _____
Room B246 min. 23.3 max. 24.8 mean 24.1

Comments:

Statistics: Method: Spearman-Karber
48/ 96 hour LC_{50}: 8.15
95% Confidence Interval: lower 7.91 upper 8.39

PAGE 000019

revised 08/24/08 SP

Appendix C. (continued)

***Ceriodaphnia dubia* Acute Standard Reference Toxicant Test**

DATE: 1-22-08 DURATION: 48 hr TOXICANT : NaCl
SPECIES: *C. dubia*

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
0.00	20	0
1.50	20	0
2.00	20	12
2.50	20	20
3.00	20	20
4.00	20	20

SPEARMAN-KARBER TRIM: 0.00%

SPEARMAN-KARBER ESTIMATES: **LC50: 1.92**
95% LOWER CONFIDENCE: 1.81
95% UPPER CONFIDENCE: 2.03

***Pimephales promelas* Acute Standard Reference Toxicant Test**

DATE: 1-08-08 DURATION: 48 hr TOXICANT : NaCl
SPECIES: *P. promelas*

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
0.00	20	1
7.00	20	1
8.00	20	8
9.00	20	19
10.00	20	20
12.00	20	20

SPEARMAN-KARBER TRIM: 0.00%

SPEARMAN-KARBER ESTIMATES: **LC50: 8.15**
95% LOWER CONFIDENCE: 7.91
95% UPPER CONFIDENCE: 8.39

NOTE: MORTALITY PROPORTIONS WERE NOT MONOTONICALLY INCREASING.
ADJUSTMENTS WERE MADE PRIOR TO SPEARMAN-KARBER

Appendix D. Test Organism Receipt(s)

MBL Aquaculture
4569 Samuel Street
Sarasota, Florida 34233
TEL: (800) 889-0384
FAX: (941) 922-3874
EMAIL: sales@mblaquaculture.com
WEB: www.MBLAquaculture.com

NELAC Accredited

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 1/7/08

Shipped to: FDEP

P.O. No: N/A

Species	Quantity	Age	Brood Number	Temperature	Salinity
Mysidopsis bahia	150	4 DAYS	MS080103	25°C	20‰
Menidia beryllina	150	11 DAYS (1/7/08)	SS071212227	25°C	21‰
Cyprinella leedsi	200	11 DAYS	CL071227	25°C	
Pimephales promelas	150	7 DAYS	FM071231	25°C	

Packed by:

Shipped Via: FedEx

Notes:

Thank you for your order.

Appendix D. (continued)



MBL Aquaculture
4569 Samuel Street
Sarasota, Florida 34233
TEL: (800) 889-0384
FAX: (941) 922-3874
EMAIL: sales@mblaquaculture.com
WEB: www.MBLAquaculture.com

NELAC Accredited

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 1/14/'08

Shipped to: FDEP

P.O. No: N/A

Species	Quantity	Age	Brood Number	Temperature	Salinity
Mysidopsis bahia					
Menidia beryllina					
Cyprinella leedsi					
Pimephales promelas	100 acute.	6 DAYS	FM080108	25°C	

Packed by: DC.

Shipped Via: FedEx

Notes: _____

Thank you for your order.

Appendix E. Chemical Analyses performed on the effluent from the IFF Chemical Holdings, Inc., Outfall D-001, sampled on January 14, 2008.

Date Sampled	Field ID	Analysis	Component	Result	Remark	Units	MDL	PQL
1/14/2008 10:20	Effluent	AGP/LN	Algal Growth Potential	10.4		mg DryWt/L	0.3	0.9
1/14/2008 10:20	Effluent	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.62	I	ug/L	0.55	1.7
1/14/2008 10:20	Effluent	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.24	U	ug/L	0.24	0.71
1/14/2008 10:20	Effluent	Toxicology	Bioassay-Acute-Screen-FW-C.dubia, LC50	100	L	LC50		
1/14/2008 10:20	Effluent	Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50	100	L	LC50		
1/14/2008 10:20	Effluent	Metals	Aluminum	60	U	ug/L	60	240
1/14/2008 10:20	Effluent	Metals	Arsenic	0.5	U	ug/L	0.5	2
1/14/2008 10:20	Effluent	Metals	Chromium	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Metals	Iron	100	I	ug/L	30	120
1/14/2008 10:20	Effluent	Metals	Calcium	70.9		mg/L	0.075	0.3
1/14/2008 10:20	Effluent	Metals	Silver	0.025	U	ug/L	0.025	0.1
1/14/2008 10:20	Effluent	Metals	Nickel	0.41	I	ug/L	0.25	1
1/14/2008 10:20	Effluent	Metals	Zinc	5	U	ug/L	5	20
1/14/2008 10:20	Effluent	Metals	Lead	0.2	U	ug/L	0.2	0.8
1/14/2008 10:20	Effluent	Metals	Copper	2.2		ug/L	0.5	2
1/14/2008 10:20	Effluent	Metals	Cadmium	0.02	U	ug/L	0.02	0.08
1/14/2008 10:20	Effluent	Metals	Magnesium	27.7		mg/L	0.04	0.16
1/14/2008 10:20	Effluent	Metals	Selenium	0.5	U	ug/L	0.5	2
1/14/2008 10:20	Effluent	Nutrients	NO2NO3-N	0.018		mg N/L	0.004	0.01
1/14/2008 10:20	Effluent	Nutrients	Total-P	0.22		mg P/L	0.02	0.06
1/14/2008 10:20	Effluent	Nutrients	O-Phosphate-P	0.17		mg P/L	0.008	0.02
1/14/2008 10:20	Effluent	Nutrients	Organic Carbon	1.8	I	mg C/L	1	5
1/14/2008 10:20	Effluent	Nutrients	Ammonia-N	0.093		mg N/L	0.01	0.02
1/14/2008 10:20	Effluent	Nutrients	Kjeldahl Nitrogen	0.22	I	mg N/L	0.16	0.4
1/14/2008 10:20	Effluent	Overflow	COD	29		mg/L		
1/14/2008 10:20	Effluent	Overflow	Oil and Grease	1.7	UY	mg/L		
1/14/2008 10:20	Effluent	Pesticides	Naled	0.8	U	ug/L	0.8	3.2
1/14/2008 10:20	Effluent	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
1/14/2008 10:20	Effluent	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
1/14/2008 10:20	Effluent	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
1/14/2008 10:20	Effluent	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
1/14/2008 10:20	Effluent	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.4

Appendix E. (continued)

Date Sampled	Field ID	Analysis	Component	Result	Remark	Units	MDL	PQL
1/14/2008 10:20	Effluent	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
1/14/2008 10:20	Effluent	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.8
1/14/2008 10:20	Effluent	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
1/14/2008 10:20	Effluent	Pesticides	Hexazinone	0.1	U	ug/L	0.1	0.4
1/14/2008 10:20	Effluent	Pesticides	Fenamiphos	0.2	U	ug/L	0.2	0.8
1/14/2008 10:20	Effluent	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
1/14/2008 10:20	Effluent	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8
1/14/2008 10:20	Effluent	Pesticides	Alachlor	0.6	U	ug/L	0.6	2.4
1/14/2008 10:20	Effluent	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
1/14/2008 10:20	Effluent	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4
1/14/2008 10:20	Effluent	Pesticides	Azinphos Methyl	0.2	U	ug/L	0.2	0.8
1/14/2008 10:20	Effluent	Pesticides	Phorate	0.05	U	ug/L	0.05	0.2
1/14/2008 10:20	Effluent	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
1/14/2008 10:20	Effluent	Pesticides	Metolachlor	0.5	U	ug/L	0.5	2
1/14/2008 10:20	Effluent	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
1/14/2008 10:20	Effluent	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
1/14/2008 10:20	Effluent	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	1
1/14/2008 10:20	Effluent	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
1/14/2008 10:20	Effluent	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
1/14/2008 10:20	Effluent	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3	U	ug/L	3	12
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Di-n-butyl phthalate	5.1	U	ug/L	5.1	20
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Endosulfan I	4	U	ug/L	4	16
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Endosulfan sulfate	1.5	U	ug/L	1.5	6.1
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Endrin	1.5	U	ug/L	1.5	6.1
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	1	UJ	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	N-Nitrosodimethylamine	2	U	ug/L	2	8.1
1/14/2008 10:20	Effluent	Priority Organic Pollutants	alpha-BHC	1.5	U	ug/L	1.5	6.1
1/14/2008 10:20	Effluent	Priority Organic Pollutants	beta-BHC	1.5	U	ug/L	1.5	6.1
1/14/2008 10:20	Effluent	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Acenaphthylene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	400
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Benzo(a)anthracene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Fluoranthene	1	UJ	ug/L	1	4

Appendix E. (continued)

Date Sampled	Field ID	Analysis	Component	Result	Remark	Units	MDL	PQL
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Naphthalene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	40
1/14/2008 10:20	Effluent	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	8.1
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Aldrin	1.5	U	ug/L	1.5	6.1
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Benzo(b)fluoranthene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Butyl benzyl phthalate	5.1	U	ug/L	5.1	20
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	8.1
1/14/2008 10:20	Effluent	Priority Organic Pollutants	delta-BHC	1.5	U	ug/L	1.5	6.1
1/14/2008 10:20	Effluent	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40	U	ug/L	40	160
1/14/2008 10:20	Effluent	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	61
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Hexachloroethane	3	U	ug/L	3	12
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Phenanthrene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	UJ	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Di-n-octyl phthalate	1	UJ	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Hexachlorocyclopentadiene	3	U	ug/L	3	12
1/14/2008 10:20	Effluent	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	2-Nitrophenol	1	UJ	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	4,4'-DDT	1.5	U	ug/L	1.5	6.1
1/14/2008 10:20	Effluent	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Benzo(a)pyrene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Benzo(k)fluoranthene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Dibenzo(a,h)anthracene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Dimethyl phthalate	10	U	ug/L	10	40
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Endosulfan II	4	U	ug/L	4	16
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Endrin aldehyde	4	U	ug/L	4	16
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Heptachlor	1.5	U	ug/L	1.5	6.1
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Heptachlor epoxide	1.5	U	ug/L	1.5	6.1

Appendix E. (continued)

Date Sampled	Field ID	Analysis	Component	Result	Remark	Units	MDL	PQL
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Hexachlorobutadiene	3	UJ	ug/L	3	12
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Dieldrin	1.5	U	ug/L	1.5	6.1
1/14/2008 10:20	Effluent	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3	U	ug/L	3	12
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	8.1
1/14/2008 10:20	Effluent	Priority Organic Pollutants	gamma-BHC	1.5	U	ug/L	1.5	6.1
1/14/2008 10:20	Effluent	Priority Organic Pollutants	4,4'-DDD	1.5	U	ug/L	1.5	6.1
1/14/2008 10:20	Effluent	Priority Organic Pollutants	4,4'-DDE	1.5	U	ug/L	1.5	6.1
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Acenaphthene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	61
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Chrysene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Diethyl phthalate	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Fluorene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Pentachlorophenol	3	UJ	ug/L	3	12
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Pyrene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	61
1/14/2008 10:20	Effluent	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3	U	ug/L	3	12
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Anthracene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Benzo(g,h,i)perylene	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4
1/14/2008 10:20	Effluent	Field Parameter	Sample Depth	0.2		m		
1/14/2008 10:20	Effluent	Field Parameter	Specific Conductance	751		umhos/cm		
1/14/2008 10:20	Effluent	Field Parameter	pH	8.32				
1/14/2008 10:20	Effluent	Field Parameter	Temperature	29.42		C		
1/14/2008 10:20	Effluent	Field Parameter	Dissolved Oxygen	2.17		mg/L		
1/14/2008 10:20	Equipment Blank	Metals	Nickel	0.25	U	ug/L	0.25	1
1/14/2008 10:20	Equipment Blank	Metals	Copper	0.5	U	ug/L	0.5	2
1/14/2008 10:20	Equipment Blank	Metals	Calcium	0.075	U	mg/L	0.075	0.3
1/14/2008 10:20	Equipment Blank	Metals	Aluminum	60	U	ug/L	60	240
1/14/2008 10:20	Equipment Blank	Metals	Arsenic	0.5	U	ug/L	0.5	2
1/14/2008 10:20	Equipment Blank	Metals	Chromium	1	U	ug/L	1	4
1/14/2008 10:20	Equipment Blank	Metals	Zinc	5	U	ug/L	5	20
1/14/2008 10:20	Equipment Blank	Metals	Selenium	0.5	U	ug/L	0.5	2

Appendix E. (continued)

Date Sampled	Field ID	Analysis	Component	Result	Remark	Units	MDL	PQL
1/14/2008 10:20	Equipment Blank	Metals	Iron	30	U	ug/L	30	120
1/14/2008 10:20	Equipment Blank	Metals	Lead	0.2	U	ug/L	0.2	0.8
1/14/2008 10:20	Equipment Blank	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
1/14/2008 10:20	Equipment Blank	Metals	Cadmium	0.02	U	ug/L	0.02	0.08
1/14/2008 10:20	Equipment Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
1/14/2008 10:20	Equipment Blank	Nutrients	NO2NO3-N	0.004	I	mg N/L	0.004	0.01
1/14/2008 10:20	Equipment Blank	Nutrients	Total-P	0.02	U	mg P/L	0.02	0.06
1/14/2008 10:20	Equipment Blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
1/14/2008 10:20	Equipment Blank	Nutrients	Organic Carbon	1	U	mg C/L	1	5
1/14/2008 10:20	Equipment Blank	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
1/14/2008 10:20	Equipment Blank	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
1/14/2008 10:20	Equipment Blank	Overflow	Oil and Grease	3.1	IY	mg/L		
1/14/2008 10:20	Equipment Blank	Overflow	COD	9.4	U	mg/L		
1/14/2008 10:20	Equipment Blank	Pesticides	Azinphos Methyl	0.21	U	ug/L	0.21	0.84
1/14/2008 10:20	Equipment Blank	Pesticides	Bromacil	0.21	U	ug/L	0.21	0.84
1/14/2008 10:20	Equipment Blank	Pesticides	Parathion Methyl	0.11	U	ug/L	0.11	0.44
1/14/2008 10:20	Equipment Blank	Pesticides	Simazine	0.053	U	ug/L	0.053	0.21
1/14/2008 10:20	Equipment Blank	Pesticides	Ametryn	0.053	U	ug/L	0.053	0.21
1/14/2008 10:20	Equipment Blank	Pesticides	Atrazine	0.053	U	ug/L	0.053	0.21
1/14/2008 10:20	Equipment Blank	Pesticides	Naled	0.84	U	ug/L	0.84	3.4
1/14/2008 10:20	Equipment Blank	Pesticides	Butylate	0.21	U	ug/L	0.21	0.84
1/14/2008 10:20	Equipment Blank	Pesticides	Diazinon	0.053	U	ug/L	0.053	0.21
1/14/2008 10:20	Equipment Blank	Pesticides	Ethion	0.053	U	ug/L	0.053	0.21
1/14/2008 10:20	Equipment Blank	Pesticides	Fonofos	0.11	U	ug/L	0.11	0.44
1/14/2008 10:20	Equipment Blank	Pesticides	Parathion Ethyl	0.16	U	ug/L	0.16	0.64
1/14/2008 10:20	Equipment Blank	Pesticides	Alachlor	0.63	U	ug/L	0.63	2.5
1/14/2008 10:20	Equipment Blank	Pesticides	Chlorpyrifos Methyl	0.11	U	ug/L	0.11	0.44
1/14/2008 10:20	Equipment Blank	Pesticides	Phorate	0.053	U	ug/L	0.053	0.21
1/14/2008 10:20	Equipment Blank	Pesticides	Ethoprop	0.11	U	ug/L	0.11	0.44
1/14/2008 10:20	Equipment Blank	Pesticides	Fenamiphos	0.21	U	ug/L	0.21	0.84
1/14/2008 10:20	Equipment Blank	Pesticides	Metalaxyl	0.26	U	ug/L	0.26	1
1/14/2008 10:20	Equipment Blank	Pesticides	Metolachlor	0.53	U	ug/L	0.53	2.1
1/14/2008 10:20	Equipment Blank	Pesticides	Hexazinone	0.11	U	ug/L	0.11	0.44
1/14/2008 10:20	Equipment Blank	Pesticides	Malathion	0.16	U	ug/L	0.16	0.64

Appendix E. (continued)

Date Sampled	Field ID	Analysis	Component	Result	Remark	Units	MDL	PQL
1/14/2008 10:20	Equipment Blank	Pesticides	Metribuzin	0.11	U	ug/L	0.11	0.44
1/14/2008 10:20	Equipment Blank	Pesticides	Mevinphos	0.21	U	ug/L	0.21	0.84
1/14/2008 10:20	Equipment Blank	Pesticides	Norflurazon	0.16	U	ug/L	0.16	0.64
1/14/2008 10:20	Equipment Blank	Pesticides	Prometryn	0.16	U	ug/L	0.16	0.64
1/14/2008 10:20	Equipment Blank	Pesticides	Chlorpyrifos Ethyl	0.053	U	ug/L	0.053	0.21
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Anthracene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Naphthalene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	gamma-BHC	1.5	U	ug/L	1.5	6.2
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Benzo(a)pyrene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.1	U	ug/L	3.1	12
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	62
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Chrysene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Endrin	1.5	U	ug/L	1.5	6.2
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.1	U	ug/L	3.1	12
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Phenanthrene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	41	U	ug/L	41	160
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Acenaphthene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	4,4'-DDD	1.5	U	ug/L	1.5	6.2
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	4,4'-DDE	1.5	U	ug/L	1.5	6.2
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Diethyl phthalate	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Heptachlor	1.5	U	ug/L	1.5	6.2
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Heptachlor epoxide	1.5	U	ug/L	1.5	6.2

Appendix E. (continued)

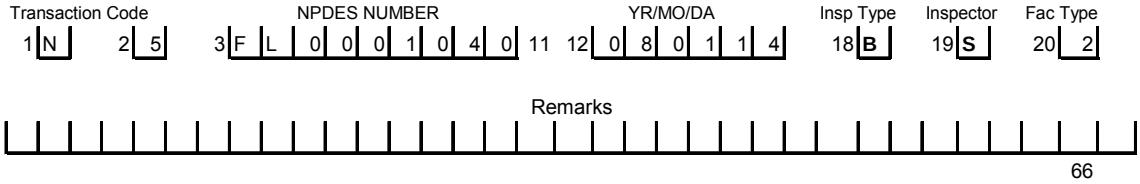
Date Sampled	Field ID	Analysis	Component	Result	Remark	Units	MDL	PQL
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	1	UJ	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Nitrobenzene	2.1	U	ug/L	2.1	8.2
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Pentachlorophenol	3.1	UJ	ug/L	3.1	12
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	alpha-BHC	1.5	U	ug/L	1.5	6.2
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.1	U	ug/L	3.1	12
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Acenaphthylene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Di-n-octyl phthalate	1	UJ	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Dieldrin	1.5	U	ug/L	1.5	6.2
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Endosulfan I	4.1	U	ug/L	4.1	16
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Fluorene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Hexachlorobutadiene	3.1	UJ	ug/L	3.1	12
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	41
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	410
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Endosulfan II	4.1	U	ug/L	4.1	16
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Endosulfan sulfate	1.5	U	ug/L	1.5	6.2
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Fluoranthene	1	UJ	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.1	U	ug/L	2.1	8.2
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Di-n-butyl phthalate	5.2	U	ug/L	5.2	21
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Endrin aldehyde	4.1	U	ug/L	4.1	16
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	2.1	U	ug/L	2.1	8.2
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	UJ	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	2-Nitrophenol	1	UJ	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	4,4'-DDT	1.5	U	ug/L	1.5	6.2
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	62
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Aldrin	1.5	U	ug/L	1.5	6.2
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Benzo(a)anthracene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Butyl benzyl phthalate	5.2	U	ug/L	5.2	21
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Dimethyl phthalate	10	U	ug/L	10	41
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Hexachloroethane	3.1	U	ug/L	3.1	12
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.1	U	ug/L	2.1	8.2

Appendix E. (continued)

Date Sampled	Field ID	Analysis	Component	Result	Remark	Units	MDL	PQL
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.1	U	ug/L	3.1	12
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	Pyrene	1	U	ug/L	1	4.1
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	beta-BHC	1.5	U	ug/L	1.5	6.2
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	delta-BHC	1.5	U	ug/L	1.5	6.2
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	62
1/14/2008 10:20	Equipment Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4.1

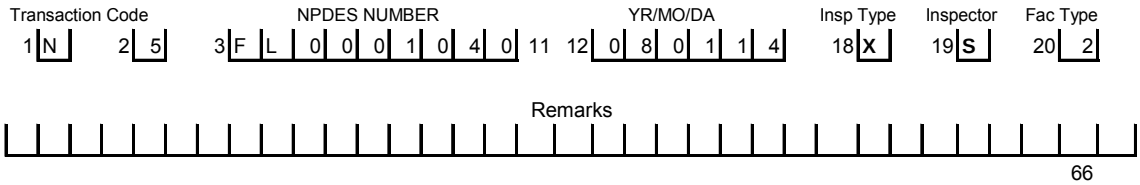
The Bioassay of IFF Chemical Holdings, Inc., effluent sampled on January 14, 2008. NPDES #FL0001040.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)



The Priority Pollutants Analysis of IFF Chemical Holdings, Inc., effluent sampled on January 14, 2008. NPDES #FL0001040.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)



Biological Analyses of IFF Chemical Holdings, Inc., effluent sampled on January 14, 2008. NPDES #FL0001040.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)

