

Bioassays of

Elizabeth Arden

(formerly known as French Fragrances)

Miami-Dade County

NPDES #FL0036978

Sampled August 23, 2004

November 2004

Biology Section
Bureau of Laboratories
Division of Resource Assessment and Management

Quality Manual No. 870346G
NELAC Certification No. E31780

Elizabeth Arden (formerly known as French Fragrances), 14100 NW 60th Avenue, Miami Lakes, Miami-Dade County, Florida, NPDES #FL0036978. Effluent samples for this facility were collected on August 23, 2004

Introduction

Elizabeth Arden is a perfume packaging and distribution facility. The design flow for discharge is 4.08 million gallons per day (MGD), and the average monthly flow was 0.04 MGD from January to July 2004. Discharge consists of climate control chiller condensers' once-through non-contact cooling water, originating as groundwater, and an unspecified amount of stormwater runoff. The condenser cooling water is discharged from the effluent room into an on-site storm sewer system which extends for about 420 feet before it reaches the offsite outfall, D-001, at which point it is combined with the stormwater runoff. This wastewater receives no treatment prior to discharge into Graham Dairy Canal, a fresh Class III surface waterbody. The current flow is lower than expected based on the permit because the facility has reduced operation from 5 chillers running 7 days per week when the permit was written to only 2 chillers running 5 days per week presently. This facility does not have any mixing zones or toxicity testing requirements (facility information taken from the applicable permit, and provided by Tjerk van Veen of FDEP Southeast District office).

Methods

Samples were collected from the NPDES sampling point by Terry Davis (FDEP Southeast District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOP's are available on the web at: http://www.floridadep.org/labs/qa/sops.htm.

The toxicity tests and algal growth potential test were performed following internal DEP SOP's TA07_01,TA07_02, and TA08_01 through TA08_07. All internal DEP SOP's are available on the web at: http://www.floridadep.org/labs/cgi-bin/sop/biosop.asp.

Toxicity Test Results

Tests were performed August 24-26, 2004.

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

Cyprinella leedsi 48-hr acute screening bioassay – LC_{50} > 100%, 0%* mortality in 100% sample at 48 hours

See Appendix 1 for bioassay bench sheets.

*NOTE: In a 48-hr acute screening test of 100% effluent, mortality of <20% provides reasonable assurance 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% mortality indicates low to moderate levels of toxicity, and further action may be required. Mortality of >50% provides reasonable assurance 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.)

Algal Growth Potential

The effluent AGP was 0.708 mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Shultz (1987) found that Algal Growth Potential (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 phosphorus-

limited. The predicted AGP based on inorganic phosphorus concentrations was 4.3 (±20%) mg dry wt/L (Table 1; Miller et al. 1978). Differences between actual and predicted AGP values greater than an order of magnitude are considered sufficient evidence to warrant follow up testing with the algal growth inhibition bioassay. True algal growth inhibition can only be determined by performing an actual algal growth inhibition test. Should algal growth be suspected, the district should request that the algal growth inhibition test be performed as a follow-up to the inspection.

See Table 1 for AGP results.

Chemistry Results

Total residual chlorine was not detected in the bioassay sample in the laboratory. Total ammonia was detected at 0.479 mg/L. The calculated unionized ammonia concentration was 0.007 mg/L, based on field measurements of pH, salinity, and temperature. The total ammonia concentration in the sample collected and preserved for chemical analysis was 0.5 mg/L. The calculated unionized ammonia concentration was 0.008 mg/L.

Copper, iron, lead, and zinc were detected in the effluent at levels that comply with Class III fresh water quality criteria. Nickel was detected between the laboratory minimum detection limit (MDL) and practical quantitation limit (PQL).

See Table 2 for results of analytes detected in the effluent, and corresponding limits.

See Appendix 2 for a complete list of chemical analyses performed.

Conclusion

The effluent samples collected from D-001 for this facility on August 23, 2004, did not show acute toxicity to either test species during the 48-hour acute bioassays. The effluent AGP result was less than the "problem" threshold for fresh receiving waters. Effluent water quality samples did not exceed any applicable water quality standards or violate any permit conditions.

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) for ortho phosphate (OP) limitation of Pseudokirchneriella subcapitata *for samples collected at the Elizabeth Arden facility on August 23, 2004.*

Location	AGP (measured)	Predicted AGP (OP) ± 20%	Inorganic N:P ratio
Effluent Samples	0.708	4.3 ± 0.86	50

Table 2. Effluent limits, Class III Criteria and water quality data for samples collected from the Elizabeth Arden facility on August 23, 2004.

Elizabeth Arden	Class III Fresh Standards	Effluent Limits	Effluent Samples
Organic Constituents (µg/L)			
None Detected	-	-	-
Metals (µg/L unless otherwise noted)			
Aluminum	-	-	11 U
Arsenic	≤ 50	-	6 U
Cadmium	≤ 2.2 b	-	0.025 U
Calcium (mg/L)	-	-	85.8 A
Chromium-III	≤ 171.2 b	-	2 U
Copper	≤ 19.1 b	-	4.6 AJ
Iron	≤ 1000	-	843 A
Lead	≤ 9.2 b	-	1.3 AJ
Magnesium (mg/L)	-	-	4.1 A
Nickel	≤ 106 b	-	2.6 I
Selenium	≤ 5	-	0.5 U
Silver	≤ 0.07	-	0.01 U
Zinc	≤ 243.7 b	-	15 A
Nutrients (mg/L)			
Ortho-phosphate	-	-	0.01 I
Total Phosphorus	-	-	0.033 I
Ammonia	-	-	0.5 A
Unionized Ammonia	≤ 0.02	-	0.008 c
Nitrate+Nitrite	-	-	0.004 U
Total Kjeldahl Nitrogen	-	-	0.94
Organic Nitrogen	-	-	0.44 c
Total Nitrogen	-	-	0.944 c
General Physical and Chemical Parameters			
COD (mg/l)	-	Report	18 I
pH (S.U.)	6.0 - 8.5	6.0 - 8.5	7.2
Conductivity (umhos/cm)	≤ 1275	-	536
Temperature (C)	-	32.2	28.6
Hardness (mg/L)	-	-	231.1 c
Total Residual Chlorine (mg/L) (lab)	≤ 0.01	-	< 0.03 U
AGP (mg DryWt/L)	-	-	0.708 AJ

Value exceeds the Class III Fresh Water Quality Criteria (62-302, F.A.C.)

b - Value is calculated based on hardness

c - calculated value

A - Value reported is the mean of two or more determinations

I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

J - Estimated value

U - Material analyzed for but not detected; value reported is the minimum detection limit

FDEP Biology Section - Acute
Bioassay Bench Sheets

Facility: Elizabeth Arden (Former French Fragrances)

Address: 14100 N.W. 60th Ave

City: ~~Dade~~ Miami Lakes County: Dade

Contact/District: T. Davis

NPDES Permit #: FL 0036978

LIMS Job #: TLH-2004-08-24-55 LIMS Sample #: 776494

Sample Collection: Date: 8-23-04 Time: 1000

Hold time Start: Date: 8-23-04 Time: 1000

Comments:

Lims Data Entry: MC 8/27/04

Data Entry Verification: TD 8/27/04

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

Test Type: ~~Screening~~/Definitive

(Static) Static Renewal / Flow-through

Test Duration: (48) 96 Hours.

Light Intensity : 50 - 100 ft. candles.

Photoperiod : 16 hours light 8 hours dark.

Initial sample handling:

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

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

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

Temperature Range °C
Incubator # 3 Range 24.2-24.4
Room B246: 23.6-23.9°C
Waterbath: N/A

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
Deena Michelson
Marshall Faircloth
Jared Pritchard
James Parrish

Nydi Wetterhof
REVIEWER

V.2 2/26/04

Water Quality Parameters	20% DMW	Well Water	Salt Water ASW NSW Test 1	Salt Water ASW NSW Test 2	Moderately Hard Water	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):	N/A	N/A	N/A	N/A	N/A	Not Measured			DN
Lab Total Residual Cl2 (mg/L):	<0.03	<0.03				<0.03	HACH	SR	DN
Alkalinity (mg/L as $CaCO_3$):	105	158				268	HACH	SR	SR
Hardness (mg/L as $CaCO_3$):	91	153				273	HACH	SR	DN
Total Ammonia (mg/L as N):	<0.017	<0.017				0.479	DENVER	DN	SR
Salinity (ppt):	<1	<1				<1	YSI	DN	DN

FDEP Biology Section - - Bioassay Bench Sheet

Survival

LIMS Sample #: 776494 **Test #:** 1 **Test Started: Date** 8/24/04 **Time:** 1320

Organism: C. dubia **Test Ended: Date** 8/26/04 **Time:** 1330

Organism Batch: 33 **Diluent/ Batch:** 20% Dmw1 29

Organism Age: <24 hr **Food:** (YCT) (P. subcapitata) *Artemia*

Chamber Size 30 mL **Batch:** 5 33 _____

Test Volume 20 mL **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			

Organisms loaded by: MF Checked by: SJ MF JJ

Loading Verified by: SJ (initials)

Comments:

m = missing d = dead BR = before renewal AR = after renewal

Test Results:

% mortality in 100% sample 0

LC_{50}: >100% If Calculated: 95% CI _____ Method: _____

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

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

Page 000153 V.1 2/23/04

FDEP Biology Section - - Bioassay Bench Sheet

Survival

LIMS Sample #: 776494 Test #: 2 Test Started: Date 8.24.04 Time: 1315

Organism: C. leedsi Test Ended: Date 8.26.04 Time: 1330

Organism Batch: 20 Diluent/ Batch: well water

Organism Age: 5th 0 days Food: YCT *P. subcapitata* (Artemia)

Chamber Size 500 mL Batch: (NA) 5 ____ 10197000256

Test Volume 500 mL 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	C9	5	5	5			
	B	C10	5	5	5			
	C	C11	5	5	5			
	D	C12	5	5	5			
100%	A	C13	5	5	5			
	B	C14	5	5	5			
	C	C15	5	5	5			
	D	C16	5	5	5			

Organisms loaded by: JD Checked by: JD JD JD (initials)

Loading Verified by: MF

m = missing d = dead BR = before renewal AR = after renewal

Comments:

Test Results:

% mortality in 100% sample 0

LC_{50}: >100% If Calculated: 95% CI _____ Method: _____

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

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

Page 000154 V.1 2/23/04

Bioassay Parameters

LIMS Sample # : 776494 **Test # :** 1 **of** 2

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

V.1 2/24/04

Concentration: Control	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A		B			
pH (S.U.)	8.2		8.4			
Temperature °C	24.1		24.6			
Dissolved Oxygen mg/L	8.3		7.7			
Conductivity (µmhos) mmhos	180		200			
(initials) Measured by:	MF		JD			
(initials) Recorded by:	MF		JD			

Comments:

Concentration: 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A		B			
pH (S.U.)	7.5		8.6			
Temperature °C	24.0		24.8			
Dissolved Oxygen mg/L	6.3		7.6			
Conductivity (µmhos) mmhos	475		475			
(initials) Measured by:	MF		JD			
(initials) Recorded by:	MF		JD			

Comments: 48hr, Rep B, pH 8.6 after sitting for 2 minutes; multiple re-reads

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:

V.1 2/24/04

[redacted]

Bioassay Parameters

LIMS Sample # : 776494 **Test # :** 2 **of** 2

TEST SOP: TA07_ 02 **Test Species:** *Ceriodaphnia dubia* (*Cyprinella leedsi*) *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:_____

V.1 2/24/04

Concentration: Control	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	8.3	8.4			
Temperature °C	24.1	25.2	24.5			
Dissolved Oxygen mg/L	8.3	7.5	7.8			
Conductivity (µmhos) mmhos	265	265	290			
(initials) Measured by:	MK	JD	JD			
(initials) Recorded by:	MK	JD	JD			

Comments:

Concentration: 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	7.6	8.2	8.5			
Temperature °C	24.0	25.4	24.4			
Dissolved Oxygen mg/L	7.1	7.5	7.3			
Conductivity (µmhos) mmhos	475	490	505			
(initials) Measured by:	MK	JD	JD			
(initials) Recorded by:	MK	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:

V.1 2/24/04

Appendix 2. Chemical analyses performed on the effluent of the Elizabeth Arden (fka French Fragrances) facility sampled on August 23, 2004.

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
8/23/2004 10:00	51-EA-1	Bio-AGP/LimNut	Algal Growth Potential	0.708	mg DryWt/L	AJ	0.1	0.3
8/23/2004 10:00	51-EA-1	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
8/23/2004 10:00	51-EA-1	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
8/23/2004 10:00	51-EA-1	Bio-Toxicology	Bioassay-Acute-Screen-FW-C.dubia, LC50	100	LC50	L		
8/23/2004 10:00	51-EA-1	Bio-Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50	100	LC50	L		
8/23/2004 10:00	51-EA-1	BNA-Water	1,2,4-Trichlorobenzene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	1,2-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	1,3-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	1,4-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	2,4,6-Trichlorophenol	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	2,4-Dichlorophenol	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	2,4-Dimethylphenol	49	ug/L	U	49	190
8/23/2004 10:00	51-EA-1	BNA-Water	2,4-Dinitrophenol	15	ug/L	U	15	58
8/23/2004 10:00	51-EA-1	BNA-Water	2,4-Dinitrotoluene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	2,6-Dinitrotoluene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	2-Chloronaphthalene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	2-Chlorophenol	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
8/23/2004 10:00	51-EA-1	BNA-Water	2-Nitrophenol	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	3,3'-Dichlorobenzidine	39	ug/L	U	39	160
8/23/2004 10:00	51-EA-1	BNA-Water	4,4'-DDD	1.5	ug/L	U	1.5	5.8
8/23/2004 10:00	51-EA-1	BNA-Water	4,4'-DDE	1.5	ug/L	U	1.5	5.8
8/23/2004 10:00	51-EA-1	BNA-Water	4,4'-DDT	1.5	ug/L	U	1.5	5.8
8/23/2004 10:00	51-EA-1	BNA-Water	4-Bromophenyl phenyl ether	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	4-Chloro-3-methylphenol	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.8
8/23/2004 10:00	51-EA-1	BNA-Water	4-Nitrophenol	15	ug/L	U	15	58
8/23/2004 10:00	51-EA-1	BNA-Water	Acenaphthene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Acenaphthylene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Aldrin	1.5	ug/L	U	1.5	5.8
8/23/2004 10:00	51-EA-1	BNA-Water	Anthracene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Benzidine	97	ug/L	U	97	390
8/23/2004 10:00	51-EA-1	BNA-Water	Benzo(a)anthracene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Benzo(a)pyrene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Benzo(b)fluoranthene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Benzo(g,h,i)perylene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Benzo(k)fluoranthene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Bis(2-chloroethoxy)methane	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Bis(2-chloroethyl)ether	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
8/23/2004 10:00	51-EA-1	BNA-Water	Bis(2-ethylhexyl)phthalate	15	ug/L	U	15	58
8/23/2004 10:00	51-EA-1	BNA-Water	Butyl benzyl phthalate	4.9	ug/L	U	4.9	19
8/23/2004 10:00	51-EA-1	BNA-Water	Chrysene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Di-n-butyl phthalate	4.9	ug/L	U	4.9	19
8/23/2004 10:00	51-EA-1	BNA-Water	Di-n-octyl phthalate	0.97	ug/L	U	0.97	3.9

8/23/2004 10:00	51-EA-1	BNA-Water	Dibenzo(a,h)anthracene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Dieldrin	1.5	ug/L	U	1.5	5.8
8/23/2004 10:00	51-EA-1	BNA-Water	Diethyl phthalate	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Dimethyl phthalate	49	ug/L	U	49	190
8/23/2004 10:00	51-EA-1	BNA-Water	Endosulfan I	3.9	ug/L	U	3.9	16
8/23/2004 10:00	51-EA-1	BNA-Water	Endosulfan II	3.9	ug/L	U	3.9	16
8/23/2004 10:00	51-EA-1	BNA-Water	Endosulfan sulfate	1.5	ug/L	U	1.5	5.8
8/23/2004 10:00	51-EA-1	BNA-Water	Endrin	1.5	ug/L	U	1.5	5.8
8/23/2004 10:00	51-EA-1	BNA-Water	Endrin aldehyde	3.9	ug/L	U	3.9	16
8/23/2004 10:00	51-EA-1	BNA-Water	Fluoranthene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Fluorene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Heptachlor	1.5	ug/L	U	1.5	5.8
8/23/2004 10:00	51-EA-1	BNA-Water	Heptachlor epoxide	1.5	ug/L	U	1.5	5.8
8/23/2004 10:00	51-EA-1	BNA-Water	Hexachlorobenzene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12
8/23/2004 10:00	51-EA-1	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	12
8/23/2004 10:00	51-EA-1	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
8/23/2004 10:00	51-EA-1	BNA-Water	Indeno(1,2,3-cd)pyrene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Isophorone	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.8
8/23/2004 10:00	51-EA-1	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.8
8/23/2004 10:00	51-EA-1	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	12
8/23/2004 10:00	51-EA-1	BNA-Water	Naphthalene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.8
8/23/2004 10:00	51-EA-1	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
8/23/2004 10:00	51-EA-1	BNA-Water	Phenanthrene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Phenol	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	Pyrene	0.97	ug/L	U	0.97	3.9
8/23/2004 10:00	51-EA-1	BNA-Water	alpha-BHC	1.5	ug/L	U	1.5	5.8
8/23/2004 10:00	51-EA-1	BNA-Water	beta-BHC	1.5	ug/L	U	1.5	5.8
8/23/2004 10:00	51-EA-1	BNA-Water	delta-BHC	1.5	ug/L	U	1.5	5.8
8/23/2004 10:00	51-EA-1	BNA-Water	gamma-BHC	1.5	ug/L	U	1.5	5.8
8/23/2004 10:10	51-EA-2	BNA-Water	1,2,4-Trichlorobenzene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	1,2-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	1,3-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	1,4-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	2,4,6-Trichlorophenol	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	2,4-Dichlorophenol	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
8/23/2004 10:10	51-EA-2	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	58
8/23/2004 10:10	51-EA-2	BNA-Water	2,4-Dinitrotoluene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	2,6-Dinitrotoluene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	2-Chloronaphthalene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	2-Chlorophenol	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
8/23/2004 10:10	51-EA-2	BNA-Water	2-Nitrophenol	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
8/23/2004 10:10	51-EA-2	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.8
8/23/2004 10:10	51-EA-2	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.8
8/23/2004 10:10	51-EA-2	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.8
8/23/2004 10:10	51-EA-2	BNA-Water	4-Bromophenyl phenyl ether	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	4-Chloro-3-methylphenol	0.96	ug/L	U	0.96	3.8

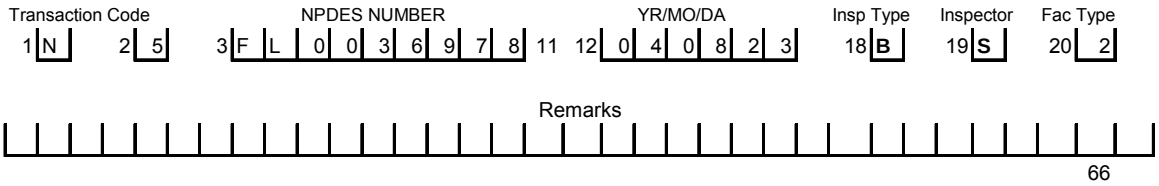
8/23/2004 10:10	51-EA-2	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.7
8/23/2004 10:10	51-EA-2	BNA-Water	4-Nitrophenol	14	ug/L	U	14	58
8/23/2004 10:10	51-EA-2	BNA-Water	Acenaphthene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Acenaphthylene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.8
8/23/2004 10:10	51-EA-2	BNA-Water	Anthracene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Benzidine	96	ug/L	U	96	380
8/23/2004 10:10	51-EA-2	BNA-Water	Benzo(a)anthracene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Benzo(a)pyrene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Benzo(b)fluoranthene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Benzo(g,h,i)perylene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Benzo(k)fluoranthene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Bis(2-chloroethoxy)methane	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Bis(2-chloroethyl)ether	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
8/23/2004 10:10	51-EA-2	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	58
8/23/2004 10:10	51-EA-2	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
8/23/2004 10:10	51-EA-2	BNA-Water	Chrysene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
8/23/2004 10:10	51-EA-2	BNA-Water	Di-n-octyl phthalate	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Dibenzo(a,h)anthracene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.8
8/23/2004 10:10	51-EA-2	BNA-Water	Diethyl phthalate	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
8/23/2004 10:10	51-EA-2	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
8/23/2004 10:10	51-EA-2	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
8/23/2004 10:10	51-EA-2	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.8
8/23/2004 10:10	51-EA-2	BNA-Water	Endrin	1.4	ug/L	U	1.4	5.8
8/23/2004 10:10	51-EA-2	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
8/23/2004 10:10	51-EA-2	BNA-Water	Fluoranthene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Fluorene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.8
8/23/2004 10:10	51-EA-2	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.8
8/23/2004 10:10	51-EA-2	BNA-Water	Hexachlorobenzene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12
8/23/2004 10:10	51-EA-2	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	12
8/23/2004 10:10	51-EA-2	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
8/23/2004 10:10	51-EA-2	BNA-Water	Indeno(1,2,3-cd)pyrene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Isophorone	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.7
8/23/2004 10:10	51-EA-2	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.7
8/23/2004 10:10	51-EA-2	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	12
8/23/2004 10:10	51-EA-2	BNA-Water	Naphthalene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.7
8/23/2004 10:10	51-EA-2	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
8/23/2004 10:10	51-EA-2	BNA-Water	Phenanthrene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Phenol	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	Pyrene	0.96	ug/L	U	0.96	3.8
8/23/2004 10:10	51-EA-2	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.8
8/23/2004 10:10	51-EA-2	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.8
8/23/2004 10:10	51-EA-2	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.8
8/23/2004 10:10	51-EA-2	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.8

8/23/2004 10:00	51-EA-1	GC-Water	Alachlor	0.58	ug/L	UJ	0.58	2.3
8/23/2004 10:00	51-EA-1	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.19
8/23/2004 10:00	51-EA-1	GC-Water	Atrazine	0.048	ug/L	U	0.048	0.19
8/23/2004 10:00	51-EA-1	GC-Water	Azinphos Methyl	0.048	ug/L	U	0.048	0.19
8/23/2004 10:00	51-EA-1	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
8/23/2004 10:00	51-EA-1	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
8/23/2004 10:00	51-EA-1	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.19
8/23/2004 10:00	51-EA-1	GC-Water	Chlorpyrifos Methyl	0.096	ug/L	U	0.096	0.38
8/23/2004 10:00	51-EA-1	GC-Water	Diazinon	0.048	ug/L	UJ	0.048	0.19
8/23/2004 10:00	51-EA-1	GC-Water	Ethion	0.048	ug/L	U	0.048	0.19
8/23/2004 10:00	51-EA-1	GC-Water	Ethoprop	0.096	ug/L	U	0.096	0.38
8/23/2004 10:00	51-EA-1	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
8/23/2004 10:00	51-EA-1	GC-Water	Fonofos	0.096	ug/L	U	0.096	0.38
8/23/2004 10:00	51-EA-1	GC-Water	Hexazinone	0.096	ug/L	U	0.096	0.38
8/23/2004 10:00	51-EA-1	GC-Water	Malathion	0.14	ug/L	U	0.14	0.56
8/23/2004 10:00	51-EA-1	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
8/23/2004 10:00	51-EA-1	GC-Water	Metolachlor	0.48	ug/L	UJ	0.48	1.9
8/23/2004 10:00	51-EA-1	GC-Water	Metribuzin	0.096	ug/L	U	0.096	0.38
8/23/2004 10:00	51-EA-1	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
8/23/2004 10:00	51-EA-1	GC-Water	Naled	0.77	ug/L	UJ	0.77	3.1
8/23/2004 10:00	51-EA-1	GC-Water	Norflurazon	0.096	ug/L	U	0.096	0.38
8/23/2004 10:00	51-EA-1	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.56
8/23/2004 10:00	51-EA-1	GC-Water	Parathion Methyl	0.096	ug/L	U	0.096	0.38
8/23/2004 10:00	51-EA-1	GC-Water	Phorate	0.048	ug/L	U	0.048	0.19
8/23/2004 10:00	51-EA-1	GC-Water	Prometryn	0.14	ug/L	UJ	0.14	0.56
8/23/2004 10:00	51-EA-1	GC-Water	Simazine	0.048	ug/L	U	0.048	0.19
8/23/2004 10:10	51-EA-2	GC-Water	Alachlor	0.58	ug/L	UJ	0.58	2.3
8/23/2004 10:10	51-EA-2	GC-Water	Ametryn	0.049	ug/L	U	0.049	0.2
8/23/2004 10:10	51-EA-2	GC-Water	Atrazine	0.049	ug/L	U	0.049	0.2
8/23/2004 10:10	51-EA-2	GC-Water	Azinphos Methyl	0.049	ug/L	U	0.049	0.2
8/23/2004 10:10	51-EA-2	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
8/23/2004 10:10	51-EA-2	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
8/23/2004 10:10	51-EA-2	GC-Water	Chlorpyrifos Ethyl	0.049	ug/L	U	0.049	0.2
8/23/2004 10:10	51-EA-2	GC-Water	Chlorpyrifos Methyl	0.097	ug/L	U	0.097	0.39
8/23/2004 10:10	51-EA-2	GC-Water	Diazinon	0.049	ug/L	UJ	0.049	0.2
8/23/2004 10:10	51-EA-2	GC-Water	Ethion	0.049	ug/L	U	0.049	0.2
8/23/2004 10:10	51-EA-2	GC-Water	Ethoprop	0.097	ug/L	U	0.097	0.39
8/23/2004 10:10	51-EA-2	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
8/23/2004 10:10	51-EA-2	GC-Water	Fonofos	0.097	ug/L	U	0.097	0.39
8/23/2004 10:10	51-EA-2	GC-Water	Hexazinone	0.097	ug/L	U	0.097	0.39
8/23/2004 10:10	51-EA-2	GC-Water	Malathion	0.15	ug/L	U	0.15	0.6
8/23/2004 10:10	51-EA-2	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
8/23/2004 10:10	51-EA-2	GC-Water	Metolachlor	0.49	ug/L	UJ	0.49	2
8/23/2004 10:10	51-EA-2	GC-Water	Metribuzin	0.097	ug/L	U	0.097	0.39
8/23/2004 10:10	51-EA-2	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
8/23/2004 10:10	51-EA-2	GC-Water	Naled	0.78	ug/L	UJ	0.78	3.1
8/23/2004 10:10	51-EA-2	GC-Water	Norflurazon	0.097	ug/L	U	0.097	0.39
8/23/2004 10:10	51-EA-2	GC-Water	Parathion Ethyl	0.15	ug/L	U	0.15	0.6
8/23/2004 10:10	51-EA-2	GC-Water	Parathion Methyl	0.097	ug/L	U	0.097	0.39
8/23/2004 10:10	51-EA-2	GC-Water	Phorate	0.049	ug/L	U	0.049	0.2
8/23/2004 10:10	51-EA-2	GC-Water	Prometryn	0.15	ug/L	UJ	0.15	0.6
8/23/2004 10:10	51-EA-2	GC-Water	Simazine	0.049	ug/L	U	0.049	0.2

8/23/2004 10:00	51-EA-1	Metals-Water	Aluminum	11	ug/L	U	11	44
8/23/2004 10:00	51-EA-1	Metals-Water	Arsenic	6	ug/L	U	6	24
8/23/2004 10:00	51-EA-1	Metals-Water	Cadmium	0.025	ug/L	U	0.025	0.1
8/23/2004 10:00	51-EA-1	Metals-Water	Calcium	85.8	mg/L	A	0.05	0.2
8/23/2004 10:00	51-EA-1	Metals-Water	Chromium	2	ug/L	U	2	8
8/23/2004 10:00	51-EA-1	Metals-Water	Copper	4.6	ug/L	AJ	1	4
8/23/2004 10:00	51-EA-1	Metals-Water	Iron	843	ug/L	A	30	120
8/23/2004 10:00	51-EA-1	Metals-Water	Lead	1.3	ug/L	AJ	0.05	0.2
8/23/2004 10:00	51-EA-1	Metals-Water	Magnesium	4.1	mg/L	A	0.02	0.08
8/23/2004 10:00	51-EA-1	Metals-Water	Nickel	2.6	ug/L	I	2	8
8/23/2004 10:00	51-EA-1	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
8/23/2004 10:00	51-EA-1	Metals-Water	Silver	0.01	ug/L	U	0.01	0.04
8/23/2004 10:00	51-EA-1	Metals-Water	Zinc	15	ug/L	A	3	12
8/23/2004 10:10	51-EA-2	Metals-Water	Aluminum	11	ug/L	U	11	44
8/23/2004 10:10	51-EA-2	Metals-Water	Arsenic	6	ug/L	U	6	24
8/23/2004 10:10	51-EA-2	Metals-Water	Cadmium	0.025	ug/L	U	0.025	0.1
8/23/2004 10:10	51-EA-2	Metals-Water	Calcium	0.05	mg/L	U	0.05	0.2
8/23/2004 10:10	51-EA-2	Metals-Water	Chromium	2	ug/L	U	2	8
8/23/2004 10:10	51-EA-2	Metals-Water	Copper	1	ug/L	U	1	4
8/23/2004 10:10	51-EA-2	Metals-Water	Iron	10	ug/L	U	10	40
8/23/2004 10:10	51-EA-2	Metals-Water	Lead	0.05	ug/L	U	0.05	0.2
8/23/2004 10:10	51-EA-2	Metals-Water	Magnesium	0.02	mg/L	U	0.02	0.08
8/23/2004 10:10	51-EA-2	Metals-Water	Nickel	2	ug/L	U	2	8
8/23/2004 10:10	51-EA-2	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
8/23/2004 10:10	51-EA-2	Metals-Water	Silver	0.01	ug/L	U	0.01	0.04
8/23/2004 10:10	51-EA-2	Metals-Water	Zinc	3	ug/L	U	3	12
8/23/2004 10:00	51-EA-1	Nutrients-Liquid	Ammonia-N	0.5	mg N/L	A	0.1	0.2
8/23/2004 10:00	51-EA-1	Nutrients-Liquid	Kjeldahl Nitrogen	0.94	mg N/L		0.06	0.2
8/23/2004 10:00	51-EA-1	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	U	0.004	0.01
8/23/2004 10:00	51-EA-1	Nutrients-Liquid	O-Phosphate-P	0.01	mg P/L	I	0.004	0.01
8/23/2004 10:00	51-EA-1	Nutrients-Liquid	Total-P	0.033	mg P/L	I	0.02	0.06
8/23/2004 10:10	51-EA-2	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
8/23/2004 10:10	51-EA-2	Nutrients-Liquid	Kjeldahl Nitrogen	0.06	mg N/L	U	0.06	0.2
8/23/2004 10:10	51-EA-2	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	U	0.004	0.01
8/23/2004 10:10	51-EA-2	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	U	0.004	0.01
8/23/2004 10:10	51-EA-2	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.06
8/23/2004 10:00	51-EA-1	Overflow	COD	18	mg/l	I		
8/23/2004 10:10	51-EA-2	Overflow	COD	15	mg/l	U		

The Bioassay of Elizabeth Arden effluent sampled on August 23, 2004, NPDES #FL0036978.

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



The Priority Pollutants Analysis for Bioassay of Elizabeth Arden effluent sampled on August 23, 2004, NPDES #FL0036978.

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

