

Bioassays of the City of

Dunedin Advanced Wastewater Treatment Plant

Dunedin, Pinellas County, Florida

NPDES #FL0021326

Sampled 9/23/02

April 2003

Biology Section

Division of Resource Assessment & Management

Comprehensive Quality Assurance Plan #870346G

Bioassays of the City of

Dunedin Advanced Wastewater Treatment Plant

Dunedin, Pinellas County, Florida

NPDES #FL0021326

Biology Section
Bureau of Laboratories
April 2003

City of Dunedin, 1140 Highland Avenue, Dunedin, Pinellas County, Florida, NPDES #FL0021326, tests performed on 24 to 26 September 2002.

Introduction

This advanced wastewater treatment facility has a design flow of 6.0 MGD. The facility has an average daily discharge of 1.380 MGD to surface water and an average daily discharge of 3.655 MGD to an urban reuse system (July, 2001-June, 2002). The wastewater treatment process includes coarse and fine bar screening, flow equalization, A2O (Anaerobic-Anoxic-Oxic) activated sludge process (an enhanced biological wastewater treatment process which is used for phosphorus and nitrogen removal), alum addition, methanol addition, denitrification, filtration, liquid chlorination, reclaimed water pumping, reaeration, and dechlorination of the effluent. Treatment of residuals includes polymer addition, dissolved-air floatation thickening, rotation-screen thickening, aerobic digestion, and land application of Class B residuals. Non-reclaimed effluent is discharged to the Class III marine waters of St. Joseph Sound, an Outstanding Florida Water (facility information provided by Melissa Gunter, FDEP, Tampa).

Methods

Samples were collected by Cindy Hodgman and Melissa Gunter 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 discussed in this report were performed following internal DEP SOP's TA07-01 and TA07-02. All internal DEP SOP's are available on the web at: http://www.floridadep.org/labs/cgi-bin/sop/biosop.asp.

Toxicity Test Results

Ceriodaphnia dubia 48-hr acute screen – Not Toxic
Cyprinella leedsi 48-hr acute screen – Not Toxic

See Table 1 for bioassay bench sheets.

Chemistry Results

Total residual chlorine and total ammonia were not detected in the bioassay sample in the laboratory.

See Table 2 for chemicals detected in the analytical chemistry samples.
See Table 3 for a complete list of chemical analyses performed.

Conclusion

The sample of effluent collected from this facility on September 23, 2002, did not show acute toxicity to either test species during the 48-hour bioassay tests.

Table 1. Data recorded during the 48-hour acute screening bioassays of a sample of effluent from the City of Dunedin, 1140 Highland Avenue, Dunedin, Pinellas County, Florida, NPDES# FL0021326, performed from 24 to 26 September 2002.

Facility:	**City of Dunedin**		**NPDES #**	**FL0021326**	Facility Type:	**Wastewater Treatment**	**Analysts:** Jacquelyn Brynda
Location:	1140 Highland Avenue, Dunedin		Contact/District:	Gunter/SW			Joshua Ayres
County:	Pinellas		Test type:	static acute screen			Christa Pierini
Sample Collection Date:	9/23/2002	Time: 1110	# tests:	2	Receiving Water:	St. Joeseph Sound	Marshall Faircloth
Test Beginning Date:	9/24/2002	Time: 1600	Chlorination Type:	dechlorinated		Outstanding Florida Water	James Daniels
Test Ending Date:	9/26/2002	Time: 1430				**Page 1 of 1**	**Reviewer:** David Whiting

Organism: ***Ceriodaphnia dubia*** Life stage: <24 hours

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[A]			Dissolved Oxygen			Conductivity Uncorrected µmhos/cm	
Concentrations	Volume(mL)	0 hr	24 hr	48 hr	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	48 hour
Control A	0/20	5	5	5	8.2	-	8.3	24.4	-	24.7	8.2	-	8.2	180	190
Control B	0/20	5	5	5	-	-	8.3	-	-	24.6	-	-	8.2	-	190
Control C	0/20	5	5	5	-	-	8.3	-	-	24.5	-	-	8.3	-	190
Control D	0/20	5	5	5	-	-	8.3	-	-	24.4	-	-	8.3	-	190
100% A	20/0	5	5	5	7.6	-	8.5	24.4	-	24.7	8.1	-	8.2	1250	1450
100% B	20/0	5	5	5	-	-	8.5	-	-	24.6	-	-	8.1	-	1535
100% C	20/0	5	5	5	-	-	8.5	-	-	24.5	-	-	8.2	-	1550
100% D	20/0	5	5	5	-	-	8.5	-	-	24.4	-	-	8.3	-	1535

[A] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 24.5-26.0°C.
Incubator #3 temperature range for the test period was 24.0-25.0°C.

Organism: ***Cyprinella leedsi*** Life stage: 12 days

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[B]			Dissolved Oxygen			Conductivity Uncorrected µmhos/cm	
Concentrations	Volume(mL)	0 hr	24 hr	48 hr	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	48 hour
Control A	0/500	5	5	5	7.9	8.3	8.5	25.2	23.4	24.8	7.9	7.9	8.0	260	280
Control B	0/500	5	5	5	7.9	8.3	8.5	25.1	23.2	24.5	7.8	7.8	8.0	270	280
Control C	0/500	5	5	5	7.9	8.3	8.5	25.0	23.2	24.4	7.9	7.8	8.2	265	280
Control D	0/500	5	5	5	7.9	8.3	8.5	25.0	23.2	24.6	7.8	7.8	8.3	265	280
100% A	500/0	5	5	5	7.6	8.1	8.3	25.5	23.3	24.7	7.7	7.7	8.3	1230	1370
100% B	500/0	5	5	5	7.6	8.1	8.3	25.6	23.4	24.5	7.9	7.6	8.1	1300	1365
100 % C	500/0	5	5	5	7.6	8.1	8.3	25.6	23.7	24.5	7.9	7.5	8.2	1300	1360
100% D	500/0	5	5	5	7.6	8.1	8.3	25.5	23.8	24.6	8.0	7.5	8.2	1330	1355

[B] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 24.5-26.0°C.
Incubator #3 temperature range for the test period was 24.0-25.0°C.

LIMS	
Job number:	TLH-2002-09-24-35
sample number:	624137

Data Transcription Verification	
date:	1/24/2003
by:	James Daniels
	Josh Ayres

Total Residual CL2	mg/L	Method
Field:	-	-
Lab:	<0.03	Hach

Ammonia	Total (mg/L)	Unionized (mg/L)
Control water (fish):	<0.017	<0.017
Control water (water flea):	<0.017	<0.017
100% Sample:	<0.017	<0.017

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control water (fish):	134	158
Control water (water flea):	86	100
100% Sample:	128	315

Table 2. Results of chemical analyses on the effluent from City of Dunedin sampled on September 23, 2002.

Metals			
Aluminum	91	ug/L	
Arsenic	6.4	ug/L	I
Cadmium	0.078	ug/L	I
Calcium	97.8	mg/L	
Copper	2.8	ug/L	I
Iron	23	ug/L	I
Lead	0.21	ug/L	I
Magnesium	13.6	mg/L	
Nickel	2	ug/L	I
Silver	0.026	ug/L	I
Zinc	31.8	ug/L	
Pesticides and Herbicides			
Atrazine	0.12	ug/L	I
Nutrients			
Ammonia-N	0.03	mg N/L	
Total Kjeldahl Nitrogen	0.79	mg N/L	A
Nitrates and Nitrites	0.018	mg N/L	
Ortho-Phosphates	0.096	mg P/L	
Total Phosphorous	0.14	mg P/L	A
Base, Neutral, & Acid Extractable Organics			
None detected			

[A] The reported value is an average of two or more values.
[I] The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

Table 3. Chemical Analyses performed on the effluent from City of Dunedin, sampled on September 23, 2002.

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
9/23/2002 11:10	27791	BNA-Water	1,2,4,5-Tetrachlorobenzene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	1,2,4-Trichlorobenzene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	1,2-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	1,3,5-Trinitrobenzene	3.9	ug/L	U	3.9	16
9/23/2002 11:10	27791	BNA-Water	1,3-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	1,3-Dinitrobenzene	1.9	ug/L	U	1.9	7.8
9/23/2002 11:10	27791	BNA-Water	1,4-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	1,4-Naphthoquinone	19	ug/L	U	19	78
9/23/2002 11:10	27791	BNA-Water	1-Naphthylamine	9.7	ug/L	U	9.7	39
9/23/2002 11:10	27791	BNA-Water	2,3,4,6-Tetrachlorophenol	1.9	ug/L	U	1.9	7.8
9/23/2002 11:10	27791	BNA-Water	2,4,5-Trichlorophenol	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	2,4,6-Trichlorophenol	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	2,4-Dichlorophenol	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	2,4-Dimethylphenol	49	ug/L	U	49	190
9/23/2002 11:10	27791	BNA-Water	2,4-Dinitrophenol	15	ug/L	U	15	58
9/23/2002 11:10	27791	BNA-Water	2,4-Dinitrotoluene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	2,6-Dichlorophenol	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	2,6-Dinitrotoluene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	2-Acetylaminofluorene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	2-Chloronaphthalene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	2-Chlorophenol	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
9/23/2002 11:10	27791	BNA-Water	2-Methylnaphthalene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	2-Naphthylamine	9.7	ug/L	U	9.7	39
9/23/2002 11:10	27791	BNA-Water	2-Nitroaniline	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	2-Nitrophenol	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	2-Picoline	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	3,3'-Dichlorobenzidine	39	ug/L	U	39	160
9/23/2002 11:10	27791	BNA-Water	3,3'-Dimethylbenzidine	19	ug/L	U	19	78
9/23/2002 11:10	27791	BNA-Water	3-Methylcholanthrene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	3-Nitroaniline	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	4,4'-DDD	1.5	ug/L	U	1.5	5.8
9/23/2002 11:10	27791	BNA-Water	4,4'-DDE	1.5	ug/L	U	1.5	5.8

9/23/2002 11:10	27791	BNA-Water	4,4'-DDT	1.5	ug/L	U	1.5	5.8
9/23/2002 11:10	27791	BNA-Water	4-Aminobiphenyl	3.9	ug/L	U	3.9	16
9/23/2002 11:10	27791	BNA-Water	4-Bromophenyl phenyl ether	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	4-Chloro-3-methylphenol	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	4-Chloroaniline	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.8
9/23/2002 11:10	27791	BNA-Water	4-Nitroaniline	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	4-Nitrophenol	15	ug/L	U	15	58
9/23/2002 11:10	27791	BNA-Water	5-Nitro-o-toluidine	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	7,12-Dimethylbenz(a)anthracene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Acenaphthene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Acenaphthylene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Acetophenone	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Aldrin	1.5	ug/L	U	1.5	5.8
9/23/2002 11:10	27791	BNA-Water	Aniline	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Anthracene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Azobenzene/1,2-Diphenylhydrazine	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Benzidine	97	ug/L	U	97	390
9/23/2002 11:10	27791	BNA-Water	Benzo(a)anthracene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Benzo(a)pyrene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Benzo(b)fluoranthene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Benzo(g,h,i)perylene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Benzo(k)fluoranthene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Benzyl alcohol	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Bis(2-chloroethoxy)methane	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Bis(2-chloroethyl)ether	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
9/23/2002 11:10	27791	BNA-Water	Bis(2-ethylhexyl)phthalate	15	ug/L	U	15	58
9/23/2002 11:10	27791	BNA-Water	Butyl benzyl phthalate	4.9	ug/L	U	4.9	19
9/23/2002 11:10	27791	BNA-Water	Chrysene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Di-n-butyl phthalate	4.9	ug/L	U	4.9	19
9/23/2002 11:10	27791	BNA-Water	Di-n-octyl phthalate	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Dibenzo(a,h)anthracene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Dibenzofuran	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Dieldrin	1.5	ug/L	U	1.5	5.8
9/23/2002 11:10	27791	BNA-Water	Diethyl phthalate	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Dimethyl phthalate	49	ug/L	U	49	190

9/23/2002 11:10	27791	BNA-Water	Dimethylaminoazobenzene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Dinoseb	3.9	ug/L	U	3.9	16
9/23/2002 11:10	27791	BNA-Water	Diphenylamine	2.9	ug/L	U	2.9	12
9/23/2002 11:10	27791	BNA-Water	Endosulfan I	3.9	ug/L	U	3.9	16
9/23/2002 11:10	27791	BNA-Water	Endosulfan II	3.9	ug/L	U	3.9	16
9/23/2002 11:10	27791	BNA-Water	Endosulfan sulfate	1.5	ug/L	U	1.5	5.8
9/23/2002 11:10	27791	BNA-Water	Endrin	1.5	ug/L	U	1.5	5.8
9/23/2002 11:10	27791	BNA-Water	Endrin aldehyde	3.9	ug/L	U	3.9	16
9/23/2002 11:10	27791	BNA-Water	Ethyl methanesulfonate	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Fluoranthene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Fluorene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Heptachlor	1.5	ug/L	U	1.5	5.8
9/23/2002 11:10	27791	BNA-Water	Heptachlor epoxide	1.5	ug/L	U	1.5	5.8
9/23/2002 11:10	27791	BNA-Water	Hexachlorobenzene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12
9/23/2002 11:10	27791	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	12
9/23/2002 11:10	27791	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
9/23/2002 11:10	27791	BNA-Water	Hexachloropropene	1.9	ug/L	U	1.9	7.8
9/23/2002 11:10	27791	BNA-Water	Indeno(1,2,3-cd)pyrene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Isophorone	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Isosafrole	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Methapyrilene	3.9	ug/L	U	3.9	16
9/23/2002 11:10	27791	BNA-Water	Methyl methanesulfonate	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	N-Nitrosodi-n-butylamine	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.8
9/23/2002 11:10	27791	BNA-Water	N-Nitrosodiethylamine	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.8
9/23/2002 11:10	27791	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	12
9/23/2002 11:10	27791	BNA-Water	N-Nitrosomethylethylamine	1.9	ug/L	U	1.9	7.8
9/23/2002 11:10	27791	BNA-Water	N-Nitrosomorpholine	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	N-Nitrosopiperidine	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	N-Nitrosopyrrolidine	1.9	ug/L	U	1.9	7.8
9/23/2002 11:10	27791	BNA-Water	Naphthalene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.8
9/23/2002 11:10	27791	BNA-Water	Nitroquinoline-1-oxide	19	ug/L	U	19	78
9/23/2002 11:10	27791	BNA-Water	Pentachlorobenzene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Pentachloroethane	49	ug/L	U	49	190

9/23/2002 11:10	27791	BNA-Water	Pentachloronitrobenzene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
9/23/2002 11:10	27791	BNA-Water	Phenacetin	3.9	ug/L	U	3.9	12
9/23/2002 11:10	27791	BNA-Water	Phenanthrene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Phenol	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Pyrene	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	Pyridine	3.9	ug/L	U	3.9	16
9/23/2002 11:10	27791	BNA-Water	Safrole	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	BNA-Water	alpha-BHC	1.5	ug/L	U	1.5	5.8
9/23/2002 11:10	27791	BNA-Water	beta-BHC	1.5	ug/L	U	1.5	5.8
9/23/2002 11:10	27791	BNA-Water	delta-BHC	1.5	ug/L	U	1.5	5.8
9/23/2002 11:10	27791	BNA-Water	gamma-BHC	1.5	ug/L	U	1.5	5.8
9/23/2002 11:10	27791	BNA-Water	m,p-Cresols	1.9	ug/L	U	1.9	7.8
9/23/2002 11:10	27791	BNA-Water	o-Cresol	1.9	ug/L	U	1.9	7.8
9/23/2002 11:10	27791	BNA-Water	o-Toluidine	0.97	ug/L	U	0.97	3.9
9/23/2002 11:10	27791	Bio-Toxicology	Bioassay-Acute-Screen-FW-C.dubia, LC	100	LC50	L		
9/23/2002 11:10	27791	Bio-Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50	100	LC50	L		
9/23/2002 11:10	27791	GC-Water	Alachlor	0.58	ug/L	U	0.58	2.32
9/23/2002 11:10	27791	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.192
9/23/2002 11:10	27791	GC-Water	Atrazine	0.12	ug/L	I	0.048	0.192
9/23/2002 11:10	27791	GC-Water	Azinphos Methyl	0.048	ug/L	U	0.048	0.192
9/23/2002 11:10	27791	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
9/23/2002 11:10	27791	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
9/23/2002 11:10	27791	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.192
9/23/2002 11:10	27791	GC-Water	Chlorpyrifos Methyl	0.096	ug/L	U	0.096	0.384
9/23/2002 11:10	27791	GC-Water	Diazinon	0.048	ug/L	U	0.048	0.192
9/23/2002 11:10	27791	GC-Water	Ethion	0.048	ug/L	U	0.048	0.192
9/23/2002 11:10	27791	GC-Water	Ethoprop	0.096	ug/L	U	0.096	0.384
9/23/2002 11:10	27791	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
9/23/2002 11:10	27791	GC-Water	Fonofos	0.096	ug/L	U	0.096	0.384
9/23/2002 11:10	27791	GC-Water	Hexazinone	0.096	ug/L	U	0.096	0.384
9/23/2002 11:10	27791	GC-Water	Malathion	0.14	ug/L	U	0.14	0.56
9/23/2002 11:10	27791	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
9/23/2002 11:10	27791	GC-Water	Metolachlor	0.48	ug/L	U	0.48	1.92
9/23/2002 11:10	27791	GC-Water	Metribuzin	0.096	ug/L	U	0.096	0.384
9/23/2002 11:10	27791	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
9/23/2002 11:10	27791	GC-Water	Naled	0.77	ug/L	U	0.77	3.08

9/23/2002 11:10	27791	GC-Water	Norflurazon	0.096	ug/L	U	0.096	0.384
9/23/2002 11:10	27791	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.56
9/23/2002 11:10	27791	GC-Water	Parathion Methyl	0.096	ug/L	U	0.096	0.384
9/23/2002 11:10	27791	GC-Water	Phorate	0.048	ug/L	U	0.048	0.192
9/23/2002 11:10	27791	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56
9/23/2002 11:10	27791	GC-Water	Simazine	0.048	ug/L	U	0.048	0.192
9/23/2002 11:10	27791	Metals-Water	Aluminum	91	ug/L		5	20
9/23/2002 11:10	27791	Metals-Water	Arsenic	6.4	ug/L	I	3	12
9/23/2002 11:10	27791	Metals-Water	Cadmium	0.078	ug/L	I	0.025	0.1
9/23/2002 11:10	27791	Metals-Water	Calcium	97.8	mg/L		0.02	0.08
9/23/2002 11:10	27791	Metals-Water	Chromium	2	ug/L	U	2	8
9/23/2002 11:10	27791	Metals-Water	Copper	2.8	ug/L	I	0.75	3
9/23/2002 11:10	27791	Metals-Water	Iron	23	ug/L	I	7	28
9/23/2002 11:10	27791	Metals-Water	Lead	0.21	ug/L	I	0.1	0.4
9/23/2002 11:10	27791	Metals-Water	Magnesium	13.6	mg/L		0.01	0.04
9/23/2002 11:10	27791	Metals-Water	Nickel	2	ug/L	I	1.5	6
9/23/2002 11:10	27791	Metals-Water	Selenium	1	ug/L	U	1	4
9/23/2002 11:10	27791	Metals-Water	Silver	0.026	ug/L	I	0.02	0.08
9/23/2002 11:10	27791	Metals-Water	Zinc	31.8	ug/L		2	8
9/23/2002 11:10	27791	Nutrients-Liquid	Ammonia-N	0.044	mg N/L		0.01	0.02
9/23/2002 11:10	27791	Nutrients-Liquid	NO2NO3-N	0.018	mg N/L		0.004	0.01
9/23/2002 11:10	27791	Nutrients-Liquid	N_KJEL_TOT	0.79	mg N/L	A	0.12	0.4
9/23/2002 11:10	27791	Nutrients-Liquid	O-Phosphate-P	0.096	mg P/L		0.008	0.02
9/23/2002 11:10	27791	Nutrients-Liquid	Total-P	0.14	mg P/L	A	0.015	0.04
9/23/2002 10:55	27792	BNA-Water	1,2,4,5-Tetrachlorobenzene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	1,2,4-Trichlorobenzene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	1,2-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	1,3,5-Trinitrobenzene	3.8	ug/L	U	3.8	15
9/23/2002 10:55	27792	BNA-Water	1,3-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	1,3-Dinitrobenzene	1.9	ug/L	U	1.9	7.7
9/23/2002 10:55	27792	BNA-Water	1,4-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	1,4-Naphthoquinone	19	ug/L	U	19	77
9/23/2002 10:55	27792	BNA-Water	1-Naphthylamine	9.6	ug/L	U	9.6	38
9/23/2002 10:55	27792	BNA-Water	2,3,4,6-Tetrachlorophenol	1.9	ug/L	U	1.9	7.7
9/23/2002 10:55	27792	BNA-Water	2,4,5-Trichlorophenol	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	2,4,6-Trichlorophenol	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	2,4-Dichlorophenol	0.96	ug/L	U	0.96	3.8

9/23/2002 10:55	27792	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
9/23/2002 10:55	27792	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	58
9/23/2002 10:55	27792	BNA-Water	2,4-Dinitrotoluene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	2,6-Dichlorophenol	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	2,6-Dinitrotoluene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	2-Acetylaminofluorene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	2-Chloronaphthalene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	2-Chlorophenol	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
9/23/2002 10:55	27792	BNA-Water	2-Methylnaphthalene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	2-Naphthylamine	9.6	ug/L	U	9.6	38
9/23/2002 10:55	27792	BNA-Water	2-Nitroaniline	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	2-Nitrophenol	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	2-Picoline	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
9/23/2002 10:55	27792	BNA-Water	3,3'-Dimethylbenzidine	19	ug/L	U	19	77
9/23/2002 10:55	27792	BNA-Water	3-Methylcholanthrene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	3-Nitroaniline	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.8
9/23/2002 10:55	27792	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.8
9/23/2002 10:55	27792	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.8
9/23/2002 10:55	27792	BNA-Water	4-Aminobiphenyl	3.8	ug/L	U	3.8	15
9/23/2002 10:55	27792	BNA-Water	4-Bromophenyl phenyl ether	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	4-Chloro-3-methylphenol	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	4-Chloroaniline	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.7
9/23/2002 10:55	27792	BNA-Water	4-Nitroaniline	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	4-Nitrophenol	14	ug/L	U	14	58
9/23/2002 10:55	27792	BNA-Water	5-Nitro-o-toluidine	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	7,12-Dimethylbenz(a)anthracene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Acenaphthene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Acenaphthylene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Acetophenone	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.8
9/23/2002 10:55	27792	BNA-Water	Aniline	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Anthracene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Azobenzene/1,2-Diphenylhydrazine	0.96	ug/L	U	0.96	3.8

9/23/2002 10:55	27792	BNA-Water	Benzidine	96	ug/L	U	96	380
9/23/2002 10:55	27792	BNA-Water	Benzo(a)anthracene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Benzo(a)pyrene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Benzo(b)fluoranthene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Benzo(g,h,i)perylene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Benzo(k)fluoranthene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Benzyl alcohol	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Bis(2-chloroethoxy)methane	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Bis(2-chloroethyl)ether	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
9/23/2002 10:55	27792	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	58
9/23/2002 10:55	27792	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
9/23/2002 10:55	27792	BNA-Water	Chrysene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
9/23/2002 10:55	27792	BNA-Water	Di-n-octyl phthalate	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Dibenzo(a,h)anthracene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Dibenzofuran	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.8
9/23/2002 10:55	27792	BNA-Water	Diethyl phthalate	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
9/23/2002 10:55	27792	BNA-Water	Dimethylaminoazobenzene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Dinoseb	3.8	ug/L	U	3.8	15
9/23/2002 10:55	27792	BNA-Water	Diphenylamine	2.9	ug/L	U	2.9	12
9/23/2002 10:55	27792	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
9/23/2002 10:55	27792	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
9/23/2002 10:55	27792	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.8
9/23/2002 10:55	27792	BNA-Water	Endrin	1.4	ug/L	U	1.4	5.8
9/23/2002 10:55	27792	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
9/23/2002 10:55	27792	BNA-Water	Ethyl methanesulfonate	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Fluoranthene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Fluorene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.8
9/23/2002 10:55	27792	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.8
9/23/2002 10:55	27792	BNA-Water	Hexachlorobenzene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12
9/23/2002 10:55	27792	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	12
9/23/2002 10:55	27792	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12

9/23/2002 10:55	27792	BNA-Water	Hexachloropropene	1.9	ug/L	U	1.9	7.7
9/23/2002 10:55	27792	BNA-Water	Indeno(1,2,3-cd)pyrene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Isophorone	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Isosafrole	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Methapyrilene	3.8	ug/L	U	3.8	15
9/23/2002 10:55	27792	BNA-Water	Methyl methanesulfonate	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	N-Nitrosodi-n-butylamine	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.7
9/23/2002 10:55	27792	BNA-Water	N-Nitrosodiethylamine	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.7
9/23/2002 10:55	27792	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	12
9/23/2002 10:55	27792	BNA-Water	N-Nitrosomethylethylamine	1.9	ug/L	U	1.9	7.7
9/23/2002 10:55	27792	BNA-Water	N-Nitrosomorpholine	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	N-Nitrosopiperidine	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	N-Nitrosopyrrolidine	1.9	ug/L	U	1.9	7.7
9/23/2002 10:55	27792	BNA-Water	Naphthalene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.7
9/23/2002 10:55	27792	BNA-Water	Nitroquinoline-1-oxide	19	ug/L	U	19	77
9/23/2002 10:55	27792	BNA-Water	Pentachlorobenzene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Pentachloroethane	48	ug/L	U	48	190
9/23/2002 10:55	27792	BNA-Water	Pentachloronitrobenzene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
9/23/2002 10:55	27792	BNA-Water	Phenacetin	3.8	ug/L	U	3.8	12
9/23/2002 10:55	27792	BNA-Water	Phenanthrene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Phenol	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Pyrene	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	Pyridine	3.8	ug/L	U	3.8	15
9/23/2002 10:55	27792	BNA-Water	Safrole	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.8
9/23/2002 10:55	27792	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.8
9/23/2002 10:55	27792	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.8
9/23/2002 10:55	27792	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.8
9/23/2002 10:55	27792	BNA-Water	m,p-Cresols	1.9	ug/L	U	1.9	7.7
9/23/2002 10:55	27792	BNA-Water	o-Cresol	1.9	ug/L	U	1.9	7.7
9/23/2002 10:55	27792	BNA-Water	o-Toluidine	0.96	ug/L	U	0.96	3.8
9/23/2002 10:55	27792	GC-Water	Alachlor	0.58	ug/L	U	0.58	2.32
9/23/2002 10:55	27792	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.192

9/23/2002 10:55	27792	GC-Water	Atrazine	0.048	ug/L	U	0.048	0.192
9/23/2002 10:55	27792	GC-Water	Azinphos Methyl	0.048	ug/L	U	0.048	0.192
9/23/2002 10:55	27792	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
9/23/2002 10:55	27792	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
9/23/2002 10:55	27792	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.192
9/23/2002 10:55	27792	GC-Water	Chlorpyrifos Methyl	0.096	ug/L	U	0.096	0.384
9/23/2002 10:55	27792	GC-Water	Diazinon	0.048	ug/L	U	0.048	0.192
9/23/2002 10:55	27792	GC-Water	Ethion	0.048	ug/L	U	0.048	0.192
9/23/2002 10:55	27792	GC-Water	Ethoprop	0.096	ug/L	U	0.096	0.384
9/23/2002 10:55	27792	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
9/23/2002 10:55	27792	GC-Water	Fonofos	0.096	ug/L	U	0.096	0.384
9/23/2002 10:55	27792	GC-Water	Hexazinone	0.096	ug/L	U	0.096	0.384
9/23/2002 10:55	27792	GC-Water	Malathion	0.14	ug/L	U	0.14	0.56
9/23/2002 10:55	27792	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
9/23/2002 10:55	27792	GC-Water	Metolachlor	0.48	ug/L	U	0.48	1.92
9/23/2002 10:55	27792	GC-Water	Metribuzin	0.096	ug/L	U	0.096	0.384
9/23/2002 10:55	27792	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
9/23/2002 10:55	27792	GC-Water	Naled	0.77	ug/L	U	0.77	3.08
9/23/2002 10:55	27792	GC-Water	Norflurazon	0.096	ug/L	U	0.096	0.384
9/23/2002 10:55	27792	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.56
9/23/2002 10:55	27792	GC-Water	Parathion Methyl	0.096	ug/L	U	0.096	0.384
9/23/2002 10:55	27792	GC-Water	Phorate	0.048	ug/L	U	0.048	0.192
9/23/2002 10:55	27792	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56
9/23/2002 10:55	27792	GC-Water	Simazine	0.048	ug/L	U	0.048	0.192
9/23/2002 10:55	27792	Metals-Water	Aluminum	28	ug/L	U	5	20
9/23/2002 10:55	27792	Metals-Water	Arsenic	3	ug/L	U	3	12
9/23/2002 10:55	27792	Metals-Water	Cadmium	0.025	ug/L	U	0.025	0.1
9/23/2002 10:55	27792	Metals-Water	Calcium	0.02	mg/L	U	0.02	0.08
9/23/2002 10:55	27792	Metals-Water	Chromium	2	ug/L	U	2	8
9/23/2002 10:55	27792	Metals-Water	Copper	0.75	ug/L	U	0.75	3
9/23/2002 10:55	27792	Metals-Water	Iron	7	ug/L	U	7	28
9/23/2002 10:55	27792	Metals-Water	Lead	0.1	ug/L	U	0.1	0.4
9/23/2002 10:55	27792	Metals-Water	Magnesium	0.01	mg/L	U	0.01	0.04
9/23/2002 10:55	27792	Metals-Water	Nickel	1.5	ug/L	U	1.5	6
9/23/2002 10:55	27792	Metals-Water	Selenium	1	ug/L	U	1	4
9/23/2002 10:55	27792	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
9/23/2002 10:55	27792	Metals-Water	Zinc	5.7	ug/L	U	2	8

9/23/2002 10:55	27792	Nutrients-Liquid	Ammonia-N	0.014	mg N/L	I	0.01	0.02
9/23/2002 10:55	27792	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	U	0.004	0.01
9/23/2002 10:55	27792	Nutrients-Liquid	N_KJEL_TOT	0.06	mg N/L	U	0.06	0.2
9/23/2002 10:55	27792	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	U	0.004	0.01
9/23/2002 10:55	27792	Nutrients-Liquid	Total-P	0.015	mg P/L	U	0.015	0.04

The Bioassay of City of Dunedin effluent sampled on September 23, 2002, NPDES #FL0021326.

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

Transaction Code		NPDES NUMBER		YR/MO/DA		Insp Type	Inspector	Fac Type
1 N	2 5	3 F L 0 0 2 1 3 2 6 # #		0 2 0 9 2 3		# **B**	# **S**	# 1

Remarks

#

The Priority Pollutants Analysis for Bioassay of City of Dunedin effluent sampled on September 23, 2002, NPDES #FL0021326.

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

Transaction Code		NPDES NUMBER		YR/MO/DA		Insp Type	Inspector	Fac Type
1 N	2 5	3 F L 0 0 2 1 3 2 6 # #		0 2 0 9 2 3		# **B**	# **S**	# 1

Remarks

#