

Bioassays of

Vero Beach Reverse Osmosis Water Treatment Facility

Indian River County

NPDES #FL0042544

Sampled December 6, 2004

March 2005

Biology Section
Bureau of Laboratories
Division of Resource Assessment and Management

Quality Manual No. 870346G
NELAC Certification No. E31780

Vero Beach Reverse Osmosis Water Treatment Facility, 3225 North US Highway 1, Vero Beach, Indian River County, Florida, NPDES #FL0042544. Effluent samples for this facility were collected on December 6, 2004.

Introduction

Vero Beach Reverse Osmosis Water Treatment Facility treats groundwater to produce potable water. This facility produces a design flow of 2.0 MGD of product water based on the one existing reverse osmosis (R.O.) skid, which results in a potable water byproduct (concentrate) design flow of 0.5 million gallons per day annual average daily flow (MGD AADF). The average discharge flow from December 2003 to November 2004 was 0.343 MGD. The permit authorizes the treatment and disposal of byproduct water only (brine). The brine is treated with a forced air stripping tower for removal of hydrogen sulfide and to increase dissolved oxygen concentrations. The brine is discharged via D-001 to the Class III Marine waters of the Main Canal and the Indian River. The 24-inch diameter submerged discharge pipe at Outfall D-001 extends 6.4 m (21 feet) from the side of the canal and discharges at a depth of approximately 1.22 m (4 feet). The Main Canal flows east 1,310.64 m (4,300 feet) before it discharges to the Indian River. This facility has mixing zones for gross alpha and combined radium. A variance for acute toxicity was issued, granting a mixing zone for chronic toxicity. The chronic toxicity mixing zone is five m (16.4 feet) upstream and 16 m (52.49 feet) downstream from the point of discharge. Chronic tests are performed on an effluent concentration of 25%. This facility had a toxicity violation with *Americamysis bahia* in March 2004, but a follow-up test in April 2004 passed (facility information provided by Mike Eckoff and Phil Kane of FDEP Central District and obtained from a PCS DMR report).

Methods

Samples were collected from the D-001 NPDES sampling point by Phil Kane and Steve Kent (FDEP Central 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_03,TA07_04, 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. While the 48-hour acute screening toxicity test does not reflect the permit required conditions, the Department uses it to provide reasonable assurance that the facility does not adversely affect waters of the state.

Bioassay sample salinity was adjusted from 7.1 parts per thousand (ppth) to approximately 20 ppth per permit conditions.

Toxicity Test Results

Tests were performed December 7-9, 2004.

Americamysis bahia 48-hr acute screening bioassay –	LC_{50} < 100%, 75%* mortality in 100% sample at 48 hours
Menidia beryllina 48-hr acute screening bioassay –	LC_{50} > 100%, 0%* mortality in 100% sample at 48 hours

The bioassay sample was acutely toxic to the *A. bahia* (mysid shrimp) test organisms, producing 75% mortality in the 48-hour test period, but was not acutely toxic to the *M. beryllina* (inland silverside minnow) test organisms. This facility's acute toxicity variance established that for compliance purposes, chronic toxicity tests be performed on 25% effluent; therefore, although

acute toxicity was demonstrated, compliance with permitted toxicity requirements cannot be determined.

The chemistry results confirmed that the ion makeup of the sample was not in seawater proportions and that the apparent 7.1 ppth salinity of the sample was due to elevated levels of ground-water ions. The observed mortality in the *A. bahia* test is likely due to the seawater-ion imbalance of the sample. Previous research conducted by the FDEP Biology Section demonstrated that *A. bahia* is much more sensitive to seawater-ion imbalances than is *M. beryllina* (FDEP, 1995). The calcium concentration was measured at 355 mg/L at 7.1 ppth salinity (salinity based on conductivity and temperature). This is approximately 327% greater than the normal concentration for calcium (~ 83 mg/L) in seawater of this salinity. The magnesium concentration was measured at 374 mg/L at 7.1 ppth salinity. This is approximately 143% more than the normal concentration (~260 mg/L) for magnesium in seawater of this salinity. In the salinity adjusted bioassay test sample, the calculated calcium and magnesium concentrations were ~ 213% and ~116%, respectively, more than the nominal concentrations of each in seawater of similar salinity. The elevated calcium concentration is one potential source of toxicity in this sample, but other unidentified sources of toxicity cannot be ruled out without performing the major-seawater-ion imbalance toxicity testing protocols cited above.

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 Algal Growth Potential (AGP) was 4.61 mg dry wt/L of *Dunaliella tertiolecta.* Raschke and Shultz found that AGP values above 10.0 mg dry weight/L represent a "problem" threshold for marine receiving waters, implying nutrient enrichment (personal communication with Ron Raschke USEPA Region 4 1987). The analytical chemistry suggests that the effluent is phosphorus-limited.

See Table 1 for AGP results.

Chemistry Results

Total residual chlorine was not detected in the bioassay sample in the laboratory. The total ammonia concentrations in the bioassay sample and the sample collected and preserved for chemical analysis were 1.13 and 1.5 mg/L, respectively. Based on the pH, salinity and temperature of the effluent as collected, the calculated unionized ammonia concentration was 0.02 mg/L.

Iron was detected in the effluent at levels that comply with Class III Marine water quality criteria. The effluent fluoride concentration (5.1 mg/L) exceeded the Class III Marine water quality criterion (≤ 5.0 mg/L; 62-302.530(33), F.A.C.) and the permit limit (≤ 5.0 mg/L). The effluent radium 226+228 concentration (5.5 pCi/L) was greater than the Class III Marine water quality criterion (≤5 pCi/L; 62-302.530(58)(a), F.A.C.), but did not exceed the permit limit (≤20 pCi/L); the facility has a mixing zone for combined radium.

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 December 6, 2004, showed acute toxicity to the mysid test organisms, but not to the fish test organisms, during the 48-hour acute bioassays. The observed toxicity was likely due to major seawater ion imbalance; however, other unidentified sources of toxicity cannot be ruled out without performing the major-seawater-ion imbalance toxicity testing protocols. The effluent AGP result was less than the "problem" threshold for marine receiving waters. The effluent fluoride concentration (5.1 mg/L) exceeded the Class III Marine water quality criterion (≤ 5.0 mg/L; 62-302.530(33), F.A.C.) and the permit limit (≤ 5.0 mg/L). The effluent radium 226+228 concentration (5.5 pCi/L) was greater than the Class III Marine water quality criterion (≤5 pCi/L; 62-302.530(58)(a), F.A.C.), but did not exceed the permit limit (≤20 pCi/L); the facility has a mixing zone for combined radium.

Literature Cited

FDEP,1995. Protocols for determining Major-Seawater-Ion Toxicity in Membrane-Technology Water-Treatment Concentrate. Biology and Chemistry Section, FDEP Bureau of Laboratories, Tallahassee, Florida. 99 pp.

Table 1. Algal growth potential (AGP) of Duneliella tertiolecta *for samples collected from the Vero Beach Reverse Osmosis Potable Water Treatment Plant on December 6, 2004.*

Location	AGP (mg dry wt/L)	Inorganic N:P ratio	Total N:P ratio
Effluent Samples	4.61 A	71.76	91

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

Table 2. Effluent limits, Class III Marine Criteria, and chemical data for samples collected from Vero Beach Reverse Osmosis Potable Water Treatment Plant on December 6, 2004.

Vero Beach Reverse Osmosis Potable Water Treatment Plant	Class III Marine Stds	Effluent Limits	Effluent Samples
Organic Constituents (µg/L)			
None Detected	-	-	-
Metals (µg/L unless otherwise noted)			
Aluminum	≤ 1500	-	5 U
Arsenic	≤ 50	-	13 U
Cadmium	≤ 9.3	-	0.75 U
Calcium (mg/L)	-	-	355
Chromium-III	-	-	2 U
Copper	≤ 3.7	-	16 U
Iron	≤ 300	≤ 300 d	118
Lead	≤ 8.5	-	0.75 U
Magnesium (mg/L)	-	-	374
Nickel	≤ 8.3	≤ 8.3 d	2 U
Selenium	≤ 71	-	5 U
Silver	≤ 2.3	-	0.2 U
Zinc	≤ 86	-	14 U
Nutrients (mg/L)			
Sulfide	-	-	0.05 U
Hydrogen sulfide	-	≤ 0.02 d	-
Ortho-phosphate	-	-	0.034
Total Phosphorus	-	≤ 4.0 a, ≤ 5.0 d	0.04 U
Ammonia	-	-	1.5
Unionized Ammonia	-	-	0.02 c
Nitrate+Nitrite	-	-	0.94
Total Kjeldahl Nitrogen	-	-	2.7
Organic Nitrogen	-	-	1.2 c
Total Nitrogen	-	≤ 4.0 a, ≤ 5.0 d	3.64 c
Fluoride	≤ 5.0	≤ 5.0 d	5.1
General Physical and Chemical Parameters			
Alpha, Total (pCi/L)	≤ 15	≤ 60 d	18.6 U
Alpha-Counting Error (pCi/L)	-	-	10.5
Radium 226 (pCi/L)	-	-	5.5
Radium 226-Counting Error (pCi/L)	-	-	0.4
Radium 228 (pCi/L)	-	-	0.9 U
Radium 228-Counting Error (pCi/L)	-	-	0.6
Radium 226 + 228 (pCi/L)	≤ 5	≤ 20 d	5.5 c
Dissolved Oxygen (mg/L)	≥ 4 s	≥ 5	6.3
pH (S.U.)	6.5 - 8.5	-	7.3
Conductivity (umhos/cm)	-	-	11760
Temperature (C)	-	-	25.1

Value exceeds the Class III Marine Water Quality Criteria (62-302, F.A.C.) and/or Effluent Limits

a - Annual average

c - calculated value

d - daily maximum

s - Single sample

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

FDEP Biology Section - Acute
Bioassay Bench Sheets

Facility: Vero Beach RO WTF

Address: 3225 North U.S. Highway 1

City: Vero Beach **County:** Indian River

Contact/District: Central / Kane - Kent

NPDES Permit #: FL 0042544

LIMS Job #: TLH-2004-12-07-44 **LIMS Sample #:** 801210

Sample Collection: Date: 12-6-04 Time: 0950

Hold time Start: Date: 12-6-04 Time: 0950

Comments: Salinity adjusted with artificial ocean salts to ~20ppth per permit mf 12-7-04

(A) NM = Not measured - DN. 12/10/04

Lims Data Entry: 12-10-04 MF

Data Entry Verification: 12.10.04 J.D.

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: 7.1 Final Salinity: ~19.9 Salts Hypersaline brine

Salinity adjusted (Test 2): yes no Initial Salinity: 7.1 Final Salinity: ~19.9 Salts Hypersaline brine

Dechlorination: yes no mL of 0.025N Sodium Thiosulfate per liter of sample. Final TRC

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)

Temperature Range °C
Incubator # 3 Range 24.8 - 25.3
Room B246: 24.3 - 24.4
Waterbath: N/A

Investigators' Signatures
Christa Pirnini
Marshall Faircloth
James Daniels
Sabal Prichard
Devin Nicholson
Mizzie Wetherell
REVIEWER

Water Quality Parameters	20% D/W	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	NM	—	—	DN
Lab Total Residual Cl2 (mg/L):			<0.03	<0.03		<0.03	HACH	CAP/SP	DN
Alkalinity (mg/L as $CaCO_3$):			259	259		137	HACH	SD	DN
Hardness (mg/L as $CaCO_3$):			NM	NM		(A) NM	HACH	SD	DN
Total Ammonia (mg/L as N):			<0.068	<0.068		1.13	DENVER	DN	CAP
Salinity (ppth):			~20	~20		7.1	YSI Mettler	SD	MF

V.3 10/12/04

FDEP Biology Section - - Bioassay Bench Sheet
Survival

LIMS Sample #: 801210 **Test #:** 1 **Test Started: Date** 12-7-04 **Time:** 1245
Organism: A. bahia **Test Ended: Date** 12-9-04 **Time:** 1230
Organism Batch: 5 **Diluent/ Batch:** ASW / 54
Organism Age: 2days **Food:** YCT *P. subcapitata* (Artemia) 4125425G
Chamber Size 1000 mL **Batch:** ___ ___
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	H1	5	5	5			
	B	H2	5	5	5			
	C	H3	5	5	5			
	D	H4	5	5	5			
SAIT CTRL	A	H5	5	5	5			
	B	H6	5	5	5			
	C	H7	5	5	5			
	D	H8	5	5	5			
100%	A	H9	5	4[D]	1[3D]			
	B	H10	5	3[2D]	2[1D]			
	C	H11	5	4[1D]	1[3D]			
	D	H12	5	4[1D]	1[3D]			
Organisms loaded by: JD		Checked by: MF	JD	JD				
Loading Verified by: MF		(initials)						

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

Comments:

Test Results:
% mortality in 100% sample 75
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).

FDEP Biology Section - - Bioassay Bench Sheet
Survival

LIMS Sample #: 801210 Test #: 2 Test Started: Date 12-7-04 Time: 1300
Organism: M. beryllina Test Ended: Date 12-9-04 Time: 1230
Organism Batch: 35 Diluent/ Batch: ASW 1 54
Organism Age: 12days Food: YCT P. subcapitata Artemia
Chamber Size 1000 mL Batch: 4125425G
Test Volume 500 mL Feeding: Prior to test Prior to renewal - Daily

Concentration	Replicate	Chamber #	0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
CTRL	A	H13	5	5	5			
	B	H14	5	5	5			
	C	H15	5	5	5			
	D	H16	5	5	5			
SALT CTRL	A	H17	5	5	5			
	B	H18	5	5	5			
	C	H19	5	5	5			
	D	H20	5	5	5			
100%	A	H21	5	5	5			
	B	H22	5	5	5			
	C	H23	5	5	5			
	D	H24	5	5	5			
Organisms loaded by: JD		Checked by:	MF	JD	JD			

Loading Verified by: MF (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).

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V.1 2/23/04

Bioassay Parameters

LIMS Sample # : 801210 **Test # :** 1 **of** 2

TEST SOP: TA07_ 03 **Test Species:** *Ceriodaphnia dubia* *Cyprinella leedsi* *Pimephales promelas* *(Americamysis bahia)* *Menidia beryllina* Other:

V.1 2/24/04

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.)	8.3	8.3	8.2			
Temperature °C	24.3	25.0	24.0			
Dissolved Oxygen mg/L	6.8	5.4	5.5			
Conductivity µmhos (mmhos)	32.2	32.7	33.0			
(initials) Measured by:	MF	DN	DN			
(initials) Recorded by:	MF	SS/DN	DN			

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.)	8.1	8.0	8.0			
Temperature °C	24.4	25.2	24.1			
Dissolved Oxygen mg/L	6.8	5.6	5.4			
Conductivity µmhos (mmhos)	31.9	32.4	32.6			
(initials) Measured by:	MF	DN	DN			
(initials) Recorded by:	MF	SS/DN	DN			

Comments:

Concentration SAIT CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	8.3	8.3	8.2			
Temperature °C	24.3	25.2	24.1			
Dissolved Oxygen mg/L	6.8	5.2	5.5			
Conductivity µmhos (mmhos)	32.4	33.3	33.0			
(initials) Measured by:	MF	DN	DN			
(initials) Recorded by:	MF	SS	DN			

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:

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V.1 2/24/04

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Bioassay Parameters

LIMS Sample # : 801210 **Test # :** 2 **of** 2

TEST SOP: TA07_ 04 **Test Species:** *Ceriodaphnia dubia* *Cyprinella leedsi* *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:_____

V.1 2/24/04

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.)	8.3	8.3	8.3			
Temperature °C	24.4	25.7	24.5			
Dissolved Oxygen mg/L	6.8	5.6	6.1			
Conductivity µmhos (mmhos)	32.3	33.1	33.0			
(initials) Measured by:	MF	DN	DN			
(initials) Recorded by:	MF	SP/DN	DN			

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.)	8.1	8.1	8.1(a)			
Temperature °C	24.4	24.8	24.3			
Dissolved Oxygen mg/L	6.8	5.7	6.1			
Conductivity µmhos (mmhos)	31.9	32.5	33.2			
(initials) Measured by:	MF	DN	DN			
(initials) Recorded by:	MF	SP/DN	DN			

Comments: (a) pH @ 48hr = 8.1 - D.N. 12/9/04

Concentration SALT CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	8.3	8.3	8.3			
Temperature °C	24.4	24.8	24.4			
Dissolved Oxygen mg/L	6.8	6.0	6.0			
Conductivity µmhos (mmhos)	32.5	33.1	32.7			
(initials) Measured by:	MF	DN	DN			
(initials) Recorded by:	MF	SP/DN	DN			

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:

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Appendix 2. Chemical Analyses performed on the effluent from the Vero Beach Reverse Osmosis Potable Water Treatment Plant Outfall D-001, sampled on December 6, 2004.

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/6/2004 9:36	VBRO	Bio-AGP/LimNut	Algal Growth Potential	4.61	mg DryWt/L	A	0.3	0.9
12/6/2004 9:36	VBRO	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
12/6/2004 9:36	VBRO	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
12/6/2004 9:36	VBRO	Bio-Toxicology	Bioassay-Acute-Screen-SW-Fish 100	LC50		L		
12/6/2004 9:36	VBRO	Bio-Toxicology	Bioassay-Acute-Screen-SW-Mysid 100	LC50		K		
12/6/2004 9:36	VBRO	BNA-Water	1,2,4-Trichlorobenzene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	1,2-Dichlorobenzene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	1,3-Dichlorobenzene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	1,4-Dichlorobenzene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	2,4,6-Trichlorophenol	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	2,4-Dichlorophenol	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	2,4-Dimethylphenol	47	ug/L	U	47	190
12/6/2004 9:36	VBRO	BNA-Water	2,4-Dinitrophenol	14	ug/L	UJ	14	57
12/6/2004 9:36	VBRO	BNA-Water	2,4-Dinitrotoluene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	2,6-Dinitrotoluene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	2-Chloronaphthalene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	2-Chlorophenol	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	2-Methyl-4,6-dinitrophenol	2.8	ug/L	UJ	2.8	11
12/6/2004 9:36	VBRO	BNA-Water	2-Nitrophenol	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
12/6/2004 9:36	VBRO	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.7
12/6/2004 9:36	VBRO	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.7
12/6/2004 9:36	VBRO	BNA-Water	4,4'-DDT	1.4	ug/L	UJ	1.4	5.7
12/6/2004 9:36	VBRO	BNA-Water	4-Bromophenyl phenyl ether	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	4-Chloro-3-methylphenol	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.5
12/6/2004 9:36	VBRO	BNA-Water	4-Nitrophenol	14	ug/L	UJ	14	57
12/6/2004 9:36	VBRO	BNA-Water	Acenaphthene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Acenaphthylene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.7
12/6/2004 9:36	VBRO	BNA-Water	Anthracene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Benzidine	94	ug/L	U	94	380
12/6/2004 9:36	VBRO	BNA-Water	Benzo(a)anthracene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Benzo(a)pyrene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Benzo(b)fluoranthene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Benzo(g,h,i)perylene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Benzo(k)fluoranthene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Bis(2-chloroethoxy)methane	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Bis(2-chloroethyl)ether	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Bis(2-chloroisopropyl)ether	2.8	ug/L	U	2.8	11
12/6/2004 9:36	VBRO	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	57
12/6/2004 9:36	VBRO	BNA-Water	Butyl benzyl phthalate	4.7	ug/L	U	4.7	19
12/6/2004 9:36	VBRO	BNA-Water	Chrysene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Di-n-butyl phthalate	4.7	ug/L	U	4.7	19
12/6/2004 9:36	VBRO	BNA-Water	Di-n-octyl phthalate	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Dibenzo(a,h)anthracene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.7
12/6/2004 9:36	VBRO	BNA-Water	Diethyl phthalate	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Dimethyl phthalate	47	ug/L	U	47	190
12/6/2004 9:36	VBRO	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
12/6/2004 9:36	VBRO	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
12/6/2004 9:36	VBRO	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.7
12/6/2004 9:36	VBRO	BNA-Water	Endrin	1.4	ug/L	UJ	1.4	5.7
12/6/2004 9:36	VBRO	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
12/6/2004 9:36	VBRO	BNA-Water	Fluoranthene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Fluorene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.7

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/6/2004 9:36	VBRO	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.7
12/6/2004 9:36	VBRO	BNA-Water	Hexachlorobenzene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Hexachlorobutadiene	2.8	ug/L	U	2.8	11
12/6/2004 9:36	VBRO	BNA-Water	Hexachlorocyclopentadiene	2.8	ug/L	UJ	2.8	11
12/6/2004 9:36	VBRO	BNA-Water	Hexachloroethane	2.8	ug/L	U	2.8	11
12/6/2004 9:36	VBRO	BNA-Water	Indeno(1,2,3-cd)pyrene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Isophorone	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.5
12/6/2004 9:36	VBRO	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.5
12/6/2004 9:36	VBRO	BNA-Water	N-Nitrosodiphenylamine	2.8	ug/L	U	2.8	11
12/6/2004 9:36	VBRO	BNA-Water	Naphthalene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.5
12/6/2004 9:36	VBRO	BNA-Water	Pentachlorophenol	2.8	ug/L	U	2.8	11
12/6/2004 9:36	VBRO	BNA-Water	Phenanthrene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Phenol	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	Pyrene	0.94	ug/L	U	0.94	3.8
12/6/2004 9:36	VBRO	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.7
12/6/2004 9:36	VBRO	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.7
12/6/2004 9:36	VBRO	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.7
12/6/2004 9:36	VBRO	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.7
12/6/2004 9:50	VBRO FB	BNA-Water	1,2,4-Trichlorobenzene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	1,2-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	1,3-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	1,4-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	2,4,6-Trichlorophenol	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	2,4-Dichlorophenol	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
12/6/2004 9:50	VBRO FB	BNA-Water	2,4-Dinitrophenol	14	ug/L	UJ	14	57
12/6/2004 9:50	VBRO FB	BNA-Water	2,4-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	2,6-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	2-Chloronaphthalene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	2-Chlorophenol	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	UJ	2.9	11
12/6/2004 9:50	VBRO FB	BNA-Water	2-Nitrophenol	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
12/6/2004 9:50	VBRO FB	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.7
12/6/2004 9:50	VBRO FB	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.7
12/6/2004 9:50	VBRO FB	BNA-Water	4,4'-DDT	1.4	ug/L	UJ	1.4	5.7
12/6/2004 9:50	VBRO FB	BNA-Water	4-Bromophenyl phenyl ether	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	4-Chloro-3-methylphenol	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.6
12/6/2004 9:50	VBRO FB	BNA-Water	4-Nitrophenol	14	ug/L	UJ	14	57
12/6/2004 9:50	VBRO FB	BNA-Water	Acenaphthene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Acenaphthylene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.7
12/6/2004 9:50	VBRO FB	BNA-Water	Anthracene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Benzidine	95	ug/L	U	95	380
12/6/2004 9:50	VBRO FB	BNA-Water	Benzo(a)anthracene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Benzo(a)pyrene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Benzo(b)fluoranthene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Benzo(g,h,i)perylene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Benzo(k)fluoranthene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Bis(2-chloroethoxy)methane	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Bis(2-chloroethyl)ether	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	11
12/6/2004 9:50	VBRO FB	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	57
12/6/2004 9:50	VBRO FB	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
12/6/2004 9:50	VBRO FB	BNA-Water	Chrysene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
12/6/2004 9:50	VBRO FB	BNA-Water	Di-n-octyl phthalate	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Dibenzo(a,h)anthracene	0.95	ug/L	U	0.95	3.8

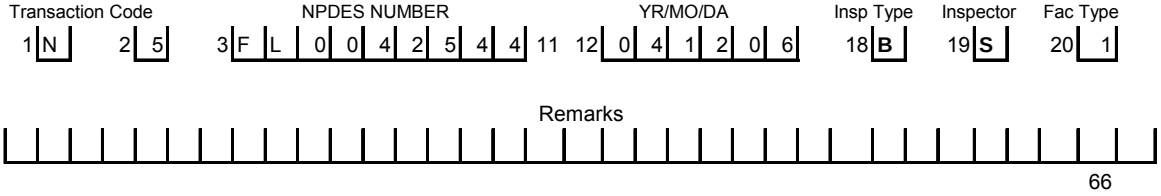
Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/6/2004 9:50	VBRO FB	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.7
12/6/2004 9:50	VBRO FB	BNA-Water	Diethyl phthalate	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
12/6/2004 9:50	VBRO FB	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
12/6/2004 9:50	VBRO FB	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
12/6/2004 9:50	VBRO FB	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.7
12/6/2004 9:50	VBRO FB	BNA-Water	Endrin	1.4	ug/L	UJ	1.4	5.7
12/6/2004 9:50	VBRO FB	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
12/6/2004 9:50	VBRO FB	BNA-Water	Fluoranthene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Fluorene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.7
12/6/2004 9:50	VBRO FB	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.7
12/6/2004 9:50	VBRO FB	BNA-Water	Hexachlorobenzene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	11
12/6/2004 9:50	VBRO FB	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	UJ	2.9	11
12/6/2004 9:50	VBRO FB	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	11
12/6/2004 9:50	VBRO FB	BNA-Water	Indeno(1,2,3-cd)pyrene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Isophorone	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.6
12/6/2004 9:50	VBRO FB	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.6
12/6/2004 9:50	VBRO FB	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	11
12/6/2004 9:50	VBRO FB	BNA-Water	Naphthalene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.6
12/6/2004 9:50	VBRO FB	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	11
12/6/2004 9:50	VBRO FB	BNA-Water	Phenanthrene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Phenol	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	Pyrene	0.95	ug/L	U	0.95	3.8
12/6/2004 9:50	VBRO FB	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.7
12/6/2004 9:50	VBRO FB	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.7
12/6/2004 9:50	VBRO FB	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.7
12/6/2004 9:50	VBRO FB	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.7
12/6/2004 9:36	VBRO	GC-Water	Alachlor	0.57	ug/L	U	0.57	2.3
12/6/2004 9:36	VBRO	GC-Water	Ametryn	0.047	ug/L	U	0.047	0.19
12/6/2004 9:36	VBRO	GC-Water	Atrazine	0.047	ug/L	U	0.047	0.19
12/6/2004 9:36	VBRO	GC-Water	Azinphos Methyl	0.047	ug/L	U	0.047	0.19
12/6/2004 9:36	VBRO	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
12/6/2004 9:36	VBRO	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
12/6/2004 9:36	VBRO	GC-Water	Chlorpyrifos Ethyl	0.047	ug/L	U	0.047	0.19
12/6/2004 9:36	VBRO	GC-Water	Chlorpyrifos Methyl	0.094	ug/L	U	0.094	0.38
12/6/2004 9:36	VBRO	GC-Water	Diazinon	0.047	ug/L	UJ	0.047	0.19
12/6/2004 9:36	VBRO	GC-Water	Ethion	0.047	ug/L	U	0.047	0.19
12/6/2004 9:36	VBRO	GC-Water	Ethoprop	0.094	ug/L	U	0.094	0.38
12/6/2004 9:36	VBRO	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
12/6/2004 9:36	VBRO	GC-Water	Fonofos	0.094	ug/L	U	0.094	0.38
12/6/2004 9:36	VBRO	GC-Water	Hexazinone	0.094	ug/L	U	0.094	0.38
12/6/2004 9:36	VBRO	GC-Water	Malathion	0.14	ug/L	UJ	0.14	0.56
12/6/2004 9:36	VBRO	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
12/6/2004 9:36	VBRO	GC-Water	Metolachlor	0.47	ug/L	U	0.47	1.9
12/6/2004 9:36	VBRO	GC-Water	Metribuzin	0.094	ug/L	U	0.094	0.38
12/6/2004 9:36	VBRO	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
12/6/2004 9:36	VBRO	GC-Water	Naled	0.75	ug/L	UJ	0.75	3
12/6/2004 9:36	VBRO	GC-Water	Norflurazon	0.094	ug/L	U	0.094	0.38
12/6/2004 9:36	VBRO	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.56
12/6/2004 9:36	VBRO	GC-Water	Parathion Methyl	0.094	ug/L	U	0.094	0.38
12/6/2004 9:36	VBRO	GC-Water	Phorate	0.047	ug/L	U	0.047	0.19
12/6/2004 9:36	VBRO	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56
12/6/2004 9:36	VBRO	GC-Water	Simazine	0.047	ug/L	U	0.047	0.19
12/6/2004 9:50	VBRO FB	GC-Water	Alachlor	0.57	ug/L	U	0.57	2.3
12/6/2004 9:50	VBRO FB	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.19
12/6/2004 9:50	VBRO FB	GC-Water	Atrazine	0.048	ug/L	U	0.048	0.19
12/6/2004 9:50	VBRO FB	GC-Water	Azinphos Methyl	0.048	ug/L	U	0.048	0.19

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/6/2004 9:50	VBRO FB	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
12/6/2004 9:50	VBRO FB	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
12/6/2004 9:50	VBRO FB	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.19
12/6/2004 9:50	VBRO FB	GC-Water	Chlorpyrifos Methyl	0.095	ug/L	U	0.095	0.38
12/6/2004 9:50	VBRO FB	GC-Water	Diazinon	0.048	ug/L	UJ	0.048	0.19
12/6/2004 9:50	VBRO FB	GC-Water	Ethion	0.048	ug/L	U	0.048	0.19
12/6/2004 9:50	VBRO FB	GC-Water	Ethoprop	0.095	ug/L	U	0.095	0.38
12/6/2004 9:50	VBRO FB	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
12/6/2004 9:50	VBRO FB	GC-Water	Fonofos	0.095	ug/L	U	0.095	0.38
12/6/2004 9:50	VBRO FB	GC-Water	Hexazinone	0.095	ug/L	U	0.095	0.38
12/6/2004 9:50	VBRO FB	GC-Water	Malathion	0.14	ug/L	UJ	0.14	0.56
12/6/2004 9:50	VBRO FB	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
12/6/2004 9:50	VBRO FB	GC-Water	Metolachlor	0.48	ug/L	U	0.48	1.9
12/6/2004 9:50	VBRO FB	GC-Water	Metribuzin	0.095	ug/L	U	0.095	0.38
12/6/2004 9:50	VBRO FB	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
12/6/2004 9:50	VBRO FB	GC-Water	Naled	0.76	ug/L	UJ	0.76	3
12/6/2004 9:50	VBRO FB	GC-Water	Norflurazon	0.095	ug/L	U	0.095	0.38
12/6/2004 9:50	VBRO FB	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.56
12/6/2004 9:50	VBRO FB	GC-Water	Parathion Methyl	0.095	ug/L	U	0.095	0.38
12/6/2004 9:50	VBRO FB	GC-Water	Phorate	0.048	ug/L	U	0.048	0.19
12/6/2004 9:50	VBRO FB	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56
12/6/2004 9:50	VBRO FB	GC-Water	Simazine	0.048	ug/L	U	0.048	0.19
12/6/2004 9:36	VBRO	Metals-Water	Aluminum	5	ug/L	U	5	20
12/6/2004 9:36	VBRO	Metals-Water	Arsenic	13	ug/L	U	13	52
12/6/2004 9:36	VBRO	Metals-Water	Cadmium	0.75	ug/L	U	0.75	3
12/6/2004 9:36	VBRO	Metals-Water	Calcium	355	mg/L		0.5	2
12/6/2004 9:36	VBRO	Metals-Water	Chromium	2	ug/L	U	2	8
12/6/2004 9:36	VBRO	Metals-Water	Copper	16	ug/L	U	16	64
12/6/2004 9:36	VBRO	Metals-Water	Iron	118	ug/L		10	40
12/6/2004 9:36	VBRO	Metals-Water	Lead	0.75	ug/L	U	0.75	3
12/6/2004 9:36	VBRO	Metals-Water	Magnesium	374	mg/L		0.2	0.8
12/6/2004 9:36	VBRO	Metals-Water	Nickel	2	ug/L	U	2	8
12/6/2004 9:36	VBRO	Metals-Water	Selenium	5	ug/L	U	5	20
12/6/2004 9:36	VBRO	Metals-Water	Silver	0.2	ug/L	U	0.2	0.8
12/6/2004 9:36	VBRO	Metals-Water	Zinc	14	ug/L	U	14	56
12/6/2004 9:50	VBRO FB	Metals-Water	Aluminum	5	ug/L	U	5	20
12/6/2004 9:50	VBRO FB	Metals-Water	Arsenic	6	ug/L	U	6	24
12/6/2004 9:50	VBRO FB	Metals-Water	Cadmium	0.075	ug/L	U	0.075	0.3
12/6/2004 9:50	VBRO FB	Metals-Water	Calcium	0.05	mg/L	U	0.05	0.2
12/6/2004 9:50	VBRO FB	Metals-Water	Chromium	2	ug/L	U	2	8
12/6/2004 9:50	VBRO FB	Metals-Water	Copper	0.75	ug/L	U	0.75	3
12/6/2004 9:50	VBRO FB	Metals-Water	Iron	10	ug/L	U	10	40
12/6/2004 9:50	VBRO FB	Metals-Water	Lead	0.075	ug/L	U	0.075	0.3
12/6/2004 9:50	VBRO FB	Metals-Water	Magnesium	0.02	mg/L	U	0.02	0.08
12/6/2004 9:50	VBRO FB	Metals-Water	Nickel	2	ug/L	U	2	8
12/6/2004 9:50	VBRO FB	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
12/6/2004 9:50	VBRO FB	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
12/6/2004 9:50	VBRO FB	Metals-Water	Zinc	3	ug/L	U	3	12
12/6/2004 9:36	VBRO	Nutrients-Liquid	Ammonia-N	1.5	mg N/L		0.1	0.2
12/6/2004 9:36	VBRO	Nutrients-Liquid	Fluoride	5.1	mg F/L		0.05	0.1
12/6/2004 9:36	VBRO	Nutrients-Liquid	Kjeldahl Nitrogen	2.7	mg N/L		0.12	0.4
12/6/2004 9:36	VBRO	Nutrients-Liquid	NO2NO3-N	0.94	mg N/L		0.008	0.02
12/6/2004 9:36	VBRO	Nutrients-Liquid	O-Phosphate-P	0.034	mg P/L		0.004	0.01
12/6/2004 9:36	VBRO	Nutrients-Liquid	Sulfide	0.05	mg S/L	U	0.05	0.2
12/6/2004 9:36	VBRO	Nutrients-Liquid	Total-P	0.04	mg P/L	U	0.04	0.12
12/6/2004 9:50	VBRO FB	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
12/6/2004 9:50	VBRO FB	Nutrients-Liquid	Fluoride	0.05	mg F/L	U	0.05	0.1
12/6/2004 9:50	VBRO FB	Nutrients-Liquid	Kjeldahl Nitrogen	0.06	mg N/L	U	0.06	0.2
12/6/2004 9:50	VBRO FB	Nutrients-Liquid	NO2NO3-N	0.028	mg N/L		0.004	0.01
12/6/2004 9:50	VBRO FB	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	U	0.004	0.01
12/6/2004 9:50	VBRO FB	Nutrients-Liquid	Sulfide	0.05	mg S/L	U	0.05	0.2

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/6/2004 9:50	VBRO FB	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.06
12/6/2004 9:36	VBRO	Overflow	Alpha, Total	18.6	pCi/L	U		
12/6/2004 9:36	VBRO	Overflow	Alpha-Counting Error	10.5	pCi/L			
12/6/2004 9:36	VBRO	Overflow	Radium 226	5.5	pCi/L			
12/6/2004 9:36	VBRO	Overflow	Radium 226-Counting Error	0.4	pCi/L			
12/6/2004 9:36	VBRO	Overflow	Radium 228	0.9	pCi/L	U		
12/6/2004 9:36	VBRO	Overflow	Radium 228-Counting Error	0.6	pCi/L			
12/6/2004 9:50	VBRO FB	Overflow	Alpha, Total	0.6	pCi/L	U		
12/6/2004 9:50	VBRO FB	Overflow	Alpha-Counting Error	0.4	pCi/L			
12/6/2004 9:50	VBRO FB	Overflow	Radium 226	0.2	pCi/L	U		
12/6/2004 9:50	VBRO FB	Overflow	Radium 226-Counting Error	0.1	pCi/L			
12/6/2004 9:50	VBRO FB	Overflow	Radium 228	1	pCi/L	U		
12/6/2004 9:50	VBRO FB	Overflow	Radium 228-Counting Error	0.6	pCi/L			

The Bioassay of Vero Beach Reverse Osmosis Potable Water Treatment Plant effluent sampled on December 6, 2004, NPDES #FL0042544.

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



The Priority Pollutants Analysis for Bioassay of Vero Beach Reverse Osmosis Potable Water Treatment Plant effluent sampled on December 6, 2004, NPDES #FL0042544.

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

