Florida
Department of Environmental Protection

Bioassays of

Scotts Hyponex

(formerly Anderson Peat & Organic Compost Company)

Montverde, Lake County, Florida

NPDES #FL0038865

Sampled 10/18/93

December 1993

Biology Section
Division of Technical Services

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(formerly Anderson Peat & Organic Compost Company)

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Bureau of Laboratories
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Introduction

Scotts Hyponex (formerly Anderson Peat and Organic Compost Company), Montverde, Lake County, Florida, NPDES #FL0038865, tests performed on 19 to 21 October, 1993.

This facility is located at 16100 County Road 455 in Lake County. It is a peat mining company, which produces potting soil as its primary product. On the 422.7 acres of land used by the facility, the peat harvesting cells are divided by a series of ditches that allow the peat beds to be dewatered. Water is collected in the ditches and pumped to a 35-acre settling pond. Water from the pond is pumped into a man-made lake that connects to Lake Apopka. The annual average flow measured from December, 1991, to November, 1992, was 2.68 MGD.

The toxicity tests discussed in this report were performed in accordance with methods described by Weber, 1991, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 4th Edition (EPA/600/4-90/027).

Results and Discussion

The FDEP Biology Section performed two 48-hour static acute screening toxicity bioassays on a sample of effluent from this facility. The test species used for these bioassays were the water flea, *Ceriodaphnia dubia*, and the bannerfin shiner, *Cyprinella leedsi* (formerly *Notropis leedsi*). The test results indicated that the sample was not toxic to *Ceriodaphnia dubia* and was minimally toxic (1 death) to *Cyprinella leedsi*.

Total residual chlorine and total ammonia were not detected in the sample. Further chemical analyses were performed on the sample and several metals were present (Table 2). Volatile organics were not detected. Pesticide analyses were not performed.

Conclusion

The sample of effluent collected from this facility on October 18, 1993 was minimally toxic to *Cyprinella leedsi*. The cause of toxicity was not determined.

Table 1. Concentration series and volumes used for the 48-hour static acute screening toxicity bioassays of the Scotts Hyponex (a.k.a. Anderson Peat Mining and Organic Compost Company) effluent performed on 19 to 21 October, 1993.

Ceriodaphnia dubia (water flea)

Concentration	Dilution Water	Sample	Total Volume
Control	20 mL	0 mL	20 mL
100 %	0 mL	20 mL	20 mL

Cyprinella leedsi (bannerfin shiner, formerly *Notropis leedsi*)

Concentration	Dilution Water	Sample	Total Volume
Control	500 mL	0 mL	500 mL
100 %	0 mL	500 mL	500 mL

Table 2. Results of chemical analyses on the effluent from Scotts Hyponex (a.k.a. Anderson Peat Mining and Organic Compost Company), sampled on 18 October, 1993.

Metals

Aluminum	698	µg/L
Calcium	39.4	mg/L [J]
Iron	172	µg/L
Magnesium	10.3	mg/L
Zinc	40	µg/L

Pesticides & Herbicides

Analyses not performed

Volatile Organic Compounds

None Detected

[J] Value reported is the estimated value.

Table 3. Data recorded during the 48-hour static acute screening bioassays of a sample of effluent from Scotts Hyponex, Montverde, Lake County, Florida, NPDES# FL0038865, performed on 19 to 21 October, 1993.

Facility:	Scotts Hyponex (a.k.a. Anderson Peat and Organic Compost Co.)	NPDES #	FL0038865	Facility Type:	Industrial Peat Mining
Location:	16100 County Road 455, Montverde	Contact/District:	Phil Kane/Central		
County:	Lake	Test type:	static acute screen		
Sample Collection Date:	10/18/93 Time: 1005	# tests:	2	Receiving Water:	Lake Apopka
Test Beginning Date:	10/19/93 Time: 1400	Chlorination Type:	Non-chlorinated		
Test Ending Date:	10/21/93 Time: 1400			Page 1 of 1	

Total Residual Cl2	mg/L	Method
Field:	not measured	
Lab:	< 0.03	DR-100

Ammonia	Total (mg/L)	Unionized (mg/L)
Control Water (fish):	<0.017	0.00
20% Dilute Mineral Water (cladocerans):	<0.017	0.00
100% Sample:	<0.017	0.00

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control Water (fish):	125	120
20% Dilute Mineral Water (cladocerans):	70	80
100% Sample:	100	135

Salinity	(ppt) **
Control Water:	0
100% Sample:	0

** Salinity converted from conductivity readings (mmhos/cm).

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

	SURVIVAL			pH			Temperature			Dissolved Oxygen			Conductivity	
Concentrations	# at 0 hr	Live at 24 hr	Live at 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	5	5	5	8.3	-	8.2	23.2	-	24.1	8.7	-	7.9	165	205
Control	5	5	5	-	-	8.2	-	-	24.1	-	-	8.0	-	180
Control	5	5	4	-	-	8.2	-	-	24.1	-	-	8.2	-	180
Control	5	5	5	-	-	8.2	-	-	24.1	-	-	8.2	-	180
100%	5	5	5	7.4	-	8.3	23.4	-	24.3	6.0	-	8.0	300	290
100%	5	5	5	-	-	8.3	-	-	24.3	-	-	8.0	-	325
100%	5	5	5	-	-	8.3	-	-	24.2	-	-	8.0	-	325
100%	5	5	5	-	-	8.3	-	-	24.2	-	-	8.1	-	330

Organism: *Cyprinella leedsi* Age: 8 days

	SURVIVAL			pH			Temperature			Dissolved Oxygen			Conductivity	
Concentrations	# at 0 hr	Live at 24 hr	Live at 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	5	5	5	7.9	8.2	8.3	23.3	23.7	23.3	8.2	8.4	8.3	240	260
Control	5	5	5	7.9	8.2	8.2	-	-	23.2	8.3	8.4	8.2	240	290
100%	5	5	4	7.4	7.9	8.1	23.9	23.7	23.1	5.6	7.8	8.3	315	350
100%	5	5	5	7.4	7.9	8.1	-	-	23.1	5.7	7.8	8.4	315	360

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Anderson Peat & Organic Compost Co.
Location: MONTVERDE
County: ORANGE
Contact/District: PHIL KANE C
NPDES Permit #: FL00 388655 Outfall #: _____

Sample Collection: Date 10-18-93 Time 1025
Test Beginning: Date 10-19-93 Time 1400
Test Ending: Date 10-21-93 Time 1400
Organism Batch #: 114 Diluent Batch #: 27
Organism Age: < 24 hrs
Test Organism: Ceriodaphnia dubia

Test Type: (Screening) | Definitive
(Static) | Static Renewal | Flow-through

G4000 93-OCT-19-24

Test Number: 1 of 2

Remarks:

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
meter #	7851	90H018262	90H018262	G9005749
0 hr	7.0 @ 7.0 9.0 @ 9.0	24.2 @ 24.3	8.4 @ 24.3	1005 @ 1,000 9610 @ 10,000 @ 24.4 °C
24 hr	7.0 @ 7.0 9.0 @ 9.0	24.1 @ 24.2	8.3 @ 24.4	1005 @ 1,000 9660 @ 10,000 @ 24.4 °C
48 hr	7.0 @ 7.0 9.0 @ 9.0	24.1 @ 24.2	8.3 @ 24.4	1005 @ 1,000 9630 @ 10,000 @ 24.5 °C

		Number Live			pH			Temperature (°C)			D.O. (mg/L)			UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm)		
Conc.	Chamber #	0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h
Control	A	5	5	5	8.3		8.2	23.2		24.1	8.7		7.7	1165		205
Control	B	5	5	5			8.2			24.1			8.0			180
Control	C	5	5	4			8.2			24.1			8.2			180
Control	D	5	5	5			8.2			24.1			8.2			180
100%	A	5	5	5	7.4		8.3	23.4		24.3	6.0		8.0	300		290
100%	B	5	5	5			8.3			24.3			8.0			325
100%	C	5	5	5			8.3			24.2			8.0			325
100%	D	5	5	5			8.3			24.2			8.1			330
Measured/Loaded by:		MF	TM	TM	MF		TM	MF		TM	MF		TM	MF		TM
Recorded by:		TR	TM	TM	TR		TR	TR		TR	TR		TR	TR		TR

Investigators' Signatures

Tobin A. Rader
Tina Mikulski
Marshall Faircloth

Reviewer

Water Quality Parameters	Salt Water/ Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2:			NOT MEASURED NONE USED IN TESTS		PK
Lab Total Residual Cl2:	<0.03	<0.03	<0.03	DR-100	TR
Alkalinity:	125	70	100	Hach	TR
Hardness:	120	80	135	Hach	TR
Total Ammonia:	<0.017	<0.017	<0.017	Orion	ME

Ammonia Meter #98136 Ammonia Meter Slope: -56.4 Ammonia Blank: <0.017 Control Salinity: 0 ppt Sample Salinity: 0 ppt

form updated 7/8/93

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Anderson Pest + Organic Compost Co.
Location: MONTVERDE
County: ORANGE
Contact/District: PHIL KANE C
NPDES Permit #: FL00 38865 Outfall #:

Sample Collection: Date 10-18-93 Time 1005
Test Beginning: Date 10-18-93 Time 1400
Test Ending: Date 10-21-93 Time 1400
Organism Batch #: 43 Diluent Batch #: well
Organism Age: 8 days
Test Organism: Cyprinella leedsi

64000 93-OCT-19-24

Test Type: (Screening) | Definitive
(Static) | Static Renewal | Flow-through

Test Number: 2 of 2

Remarks:

Instrument Calibrations:	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
meter #	7851	90H018262	90H018262	G9005749
0 hr	7.0 @ 7.0 9.0 @ 9.0	24.2 @ 24.3	8.4 @ 24.3	1005 @ 1,000 9610 @ 10,000 @ 24.4 °C
24 hr	7.0 @ 7.0 9.0 @ 9.0	24.1 @ 24.2	8.3 @ 24.4	1005 @ 1,000 9660 @ 10,000 @ 24.4 °C
48 hr	7.0 @ 7.0 9.0 @ 9.0	24.1 @ 24.2	8.3 @ 24.4	1005 @ 1,000 9630 @ 10,000 @ 24.5 °C

Conc.	Chamber #	Number Live			pH			Temperature (°C)			D.O. (mg/L)			UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm)		
		0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h
Control A	91	5	5	5	7.9	8.2	8.3	23.3	23.7	23.3	8.2	8.4	8.3	240	295	260
Control B	413	5	5	5	7.9	8.2	8.2			23.2	8.3	8.4	8.2	240	295	290
100% A	85	5	5	4	7.4	7.9	8.1	23.9	23.7	23.1	5.6	7.8	8.3	315	355	350
100% B	15	5	5	5	7.4	7.9	8.1			23.1	5.7	7.8	8.4	315	360	360
Measured/Loaded by:		TR	TM	TM	MF	MF	TM	MF	MF	TM	MF	MF	TM	MF	MF	TM
Recorded by:		TR	TM	TM	TR	TM	TR	TR	TM	TR	TR	TM	TR	TR	TM	TR

Investigators' Signatures

Tobin G. Rader
Tina Mikulski
Marshall Faircloth

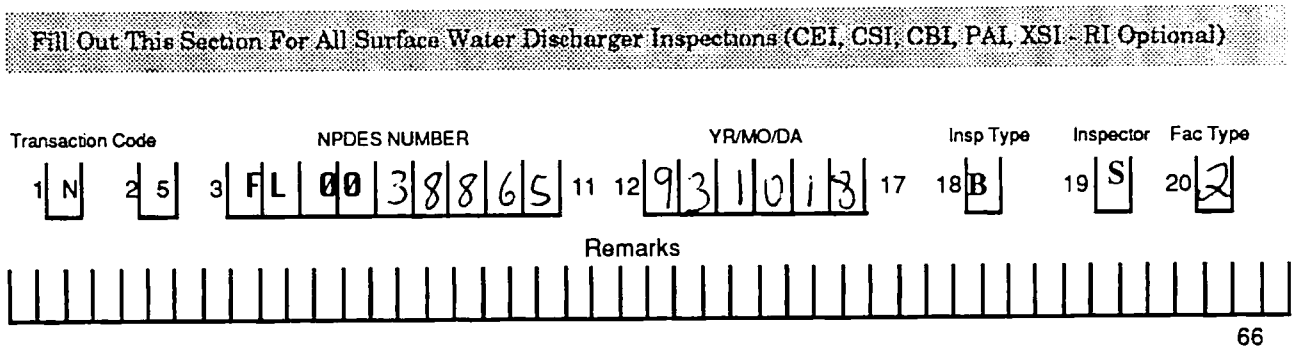
Reviewer

Water Quality Parameters	Salt Water/ Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2:			NOT MEASURED - NONE USED IN PROCESS		PK
Lab Total Residual Cl2:	<0.03	<0.03	<0.03	DR-100	TR
Alkalinity:	125	70	100	Hach	TR
Hardness:	120	80	135	Hach	TR
Total Ammonia:	<0.017	<0.017	<0.017	Orion	ME

Ammonia Meter #98136 Ammonia Meter Slope: -56.4 Ammonia Blank: <0.017 Control Salinity: 0 ppt Sample Salinity: 0 ppt

form updated 7/8/93

The Bioassay of the Scotts Hyponex (a.k.a. Anderson Peat Mining and Organic Compost Company) effluent sampled on October 18, 1993, NPDES# FL0038865.



The Priority Pollutants Analysis for the Bioassay of the Scotts Hyponex (a.k.a. Anderson Peat Mining and Organic Compost Company) effluent sampled on October 18, 1993, NPDES# FL0038865.

