

AGITATED BIN COMPOSTING, START-UP AND OPERATION

By

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INTRODUCTION

The transition from a pilot facility to a full-scale plant in Palm Beach County, Florida has been relatively smooth. The primary challenges are plastics removal and market development for the finished compost.

The Solid Waste Authority of Palm Beach County (SWA), Florida took a "testing the waters" approach to composting biosolids and yard trimmings. The Authority was faced with a Florida ban on yard trimmings disposal and the need to find alternatives to landfilling biosolids. In 1991, it began operating a 2.3 dry ton/day agitated bay facility, with the idea of expanding capacity to process about 120,00 tons/year of material. Success with the pilot plant led the Authority to move forward with a larger facility.

Expansion of the Second Nature Compost Facility (SNCF), the name of the Authority's plant, proceeded rather smoothly. Eight bays were added to the four in the original compost building and a new building that houses 24 bays was constructed, making the facility the largest agitated bed compost plant utilizing the Wheelabrator Clean Water Systems (IPS) technology. Operations commenced on October 1, 1994. The facility now accepts wastewater residuals generated by Palm Beach County and the City of West Palm Beach and Seacoast Utilities. The SWA owns and operates the SNCF. It is responsible for the management and disposal of solid waste in Palm Beach County, which has a population of approximately one million people.

COMPOST FEEDSTOCK

The Authority now accepts approximately 120,00 tons per year of raw yard trimmings. Since plastic bags are still allowed in SWA's yard trimmings collection program, a rather extensive presorting process is necessary. Yard trimmings are delivered from five SWA transfer facilities by 100-yard walking floor trailers or via other various types of commercial trucks. Because loads get combined at the transfer stations, incoming material is a mix of bagged yard trimmings, and brush and wood of varying size. After being unloaded in a receiving area, materials are separated into two fractions: clean yard trimmings for composting and contaminated stream for fuel production. A combination of mechanical and hand sorting is utilized to remove pieces of plastic and other debris. About 90 percent of the contaminants are removed prior to grinding.

Once the yard trimmings presort is completed, a contractor grinds the cleans material twice in standard tub grinders. The ground mulch is fed directly into a trommel screen with 1 1/4" screens. The 1 1/4" minus product is sent to the compost facility and 1 1/4" plus is sold for fuel. The screened mulch enhances the compost facility capacity not only by using up more yard trimmings, but also by increasing the ability to accept more biosolids. The double ground yard trimmings are transported to the compost facility in 100 cubic yard walking floor trailers (same as the transfer facility trailers) and discharged onto the tip floor area. Approximately three days of covered storage is available for ground mulch at the compost facility.

The wastewater residuals delivered to the SNCF average about 13 percent dry solids and are dewatered with belt presses. The City of West Palm Beach, which supplied approximately 75 percent of the biosolids delivered in fiscal year 1994/1995, is presently undergoing an expansion of its 40 million gallon per day (MGD) wastewater treatment plant

(WWTP) to 55 MGD by December, 1996. During this expansion, the city has taken the opportunity to enhance its dewatering operation and expects to increase wastewater residuals dewatering capabilities from 13 percent dry solids to an average of 18 to 22 percent. This will allow the city to reduce the amount of wet tons delivered to the compost facility, thereby reducing the need for further expansion of the compost facility and composting equipment. Significant compost cost savings will occur by investing in equipment capable of producing a drier biosolids cake.

All wastewater residuals are delivered to the compost facility in 30 yard tractor trailers that utilize dump type bodies. The trucks back up to an elevated tipping platform to discharge loads over a two foot wall and down onto the tipping floor, which has approximately two days of storage capacity. Operators work from 5:30 a.m. to 5:30 p.m.; the goal is to load all mixed biosolids and yard trimmings into the bays during the same work day. On occasion, two or three loads of biosolids may remain on the tipping floor overnight, which has not created odor problems.

Next to the tipping floor is the mixing area where the yard trimmings and biosolids are combined to produce the feedstock mixture. Two stationary batch mixers capable of handling approximately 16 cubic yards of material at a time stand side by side. A weight sensor, which measures the net weight of the material fed into the mixer, enables operators to tailor mix feedstocks. Typically, the operator mixes a 50:50 (by weight) yard trimmings/biosolids combination in the batch mixer to obtain a targeted final mixture dry solids content of 38 percent. Controlling the moisture in the mixing process is crucial to maintaining optimum composting conditions in the reactors. Careful testing of the dry solids content and bulk density of all feedstock components is so important that the proper mixture ratios are calculated and adhered to. Mistakes made at this point can affect the composting process and the quality of end products, possibly resulting in increased costs and time spent troubleshooting.

COMPOSTING PROCESS

Once the feedstock mixing is completed, the material discharges from the batch mixer onto a stacking conveyor and into a small stockpile. The feedstock inventory is individually fed into one of the 36 compost reactors through the use of a skid steer-type loader. The compost facility was designed so that 14 to 28 cubic yards could be added to each of the 36 reactors on a daily basis. The exact amount is based on the quantity of biosolids delivered each day to the compost facility by the generators. The SNCF has a designed wastewater residuals daily peak capacity of 220 wet tons with an annual capacity of up to 60,000 wet tons.

Each of the 36 composting reactors are separated into six aeration zones. They vary in length, with shorter zones toward the mixing end where the composting process is initiated. Each zone of each reactor is designated a single temperature sensor and a single aeration blower to allow individual temperature control and aeration. The zones are always designated with letters beginning with "A" and increasing through the alphabet from the mixing end toward the finished end. Process control includes continuous temperature monitoring and automatic control of the aeration system.

There are three agitators in the 12 bay building, and six agitators in the 24 bay building. The bays are equipped with a transfer dolly for moving the agitator from one reactor to the next. There is approximately a 38 percent reduction in weight during the composting process as a result of decomposition and moisture driven off by elevated temperature in the reactors.

ODOR CONTROL SYSTEM

The compost facility utilizes three separate 12,000 square foot biofilters, each servicing 12 reactors. The media consists of a four foot deep mixture of 50 % southern pine chip and 50 % southern pine mulch, with six inches to one foot of southern pine mulch on top to optimize moisture conditions. The composting system is equipped with an exhaust system that ventilates the interior of the enclosed compost building. It maintains negative air pressure within the building, which includes the tipping floor, feedstock mixing area, composting reactors, and compost discharge area.

Twelve 60 horsepower fans control the supply of odorous air from the compost facility to the biofilters. Each ventilation blower also can discharge to the atmosphere directly. The discharge path is controlled with a manually operated damper. The two speed blower motors are capable of operating at high speed (16,000 cu. ft./min.) when discharging to the biofilter and at low speed (12,000 cu. ft./min.) when discharging directly to the atmosphere. (The resistance to air flow through the biofilter requires more discharge pressure and, thus, a higher speed.) The normal path of ventilation air is through the blowers to the biofilter. Discharge to the atmosphere is limited to the evening when there is little or no odor in the building. Air is discharged through a stack that is the same height of the building. Operators also may open up the buildings doors in the evening to allow heat to dissipate. The SNCF is bordered on the east side by a landfill (after which the nearest neighbor is a half-mile away) and on the west side by a county road that is 400 feet away, after which there is no development for approximately seven miles.

An acceptance test was performed on the biofilters during start-up. The biofilters collectively achieved a discharge concentration average of 10 dilutions to threshold (ED 50) and a butanol intensity average of 1.4. The biofilter is regularly monitored to maintain proper operating conditions. Addition of water is necessary, particularly during summer months. The amount of water addition required fluctuates depending on conditions both within and outside the compost building.

In addition to the biofilter and atmospheric dilution, SNCF operators follow specific guidelines to reduce odors. Uncomposted biosolids or mixture of biosolids and amendment cannot sit for prolonged periods without agitation and controlled aeration. Uniform aeration is important, with temperatures not allowed to consistently rise to above 65C. In addition, reactors are agitated and aerated on a consistent schedule, because rapid swings in compost aeration and temperature can result in the release of excessive odors. Pools of water should not sit on the floor or aisles. The main floor and mixing equipment are cleaned regularly. Other practices involve maintenance of proper moisture levels in the compost and thorough mixing of the feedstock mixture.

PRODUCT QUALITY

The compost mix remains in the bays for a minimum of 14 days, and during the summer retention may be as long as 21 days. The SNCF does not have a curing area, but because of product storage, compost remains on site for an average of two months (and sometimes as long as four months). Finished compost is tested for pathogens, vector attraction reduction and stability. The compost meets the U.S. EPA Part 503 and Florida Department of Environmental Protection standards for unlimited distribution. Stability, monitored with carbon dioxide respiration testing, shows a stable to very stable rating upon discharge from the bays. Stability tests on product when it actually is distributed show similar results.

Finished compost is stored in "blocks" that are 50 feet by 100 feet and about 15 feet in height. The piles continue to have elevated temperatures and dry solids content remains steady because less surface area is exposed to moisture. Additional testing is done on the stockpiled material for fecal coliform, salmonella, helminth ova and enteric viruses; there have not been problems with regrowth (attributed primarily to the uniform temperature). Stockpiling in the block formation can, however, cause the material to become anaerobic. Therefore operators turn the pile two to three days before product distribution to release ammonia.

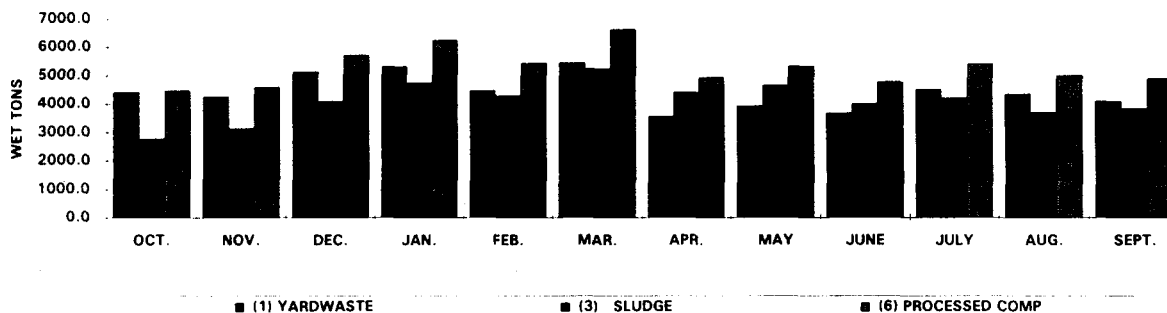
**SECOND NATURE COMPOST FACILITY
FISCAL YEAR 1994-1995 ANNUAL SUMMARY**

MONTH	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	AVG.	TOTAL
(1) YARDWASTE RECEIVED (WET TONS)	4425.1	4268.1	5141.1	5324.7	4477.0	5453.8	3560.2	3936.4	3692.1	4527.0	4360.3	4103.1	4439.1	53268.8
(2) YARDWASTE (% SOLIDS)	49.6	52.8	53.1	53.2	57.6	62.6	65.6	68.2	62.6	55.3	49.3	51.4	56.8	
(3) SLUDGE RECEIVED (WET TONS)	2774.4	3138.0	4091.9	4753.8	4301.8	5248.3	4419.5	4655.4	4015.9	4217.0	3713.2	3840.1	4097.4	49169.3
(4) SLUDGE (% SOLIDS)	12.7	12.3	12.4	12.9	12.9	13.2	13.3	13.4	13.0	12.9	11.5	12.0	12.7	
(5) SLUDGE (DRY TONS)	352.3	386.0	508.6	613.2	554.9	690.9	587.8	623.8	522.1	541.9	427.1	458.6	522.3	6267.3
(6) PROCESSED COMPOST (WET TONS)	4463.7	4591.8	5724.5	6248.7	5442.8	6635.3	4947.4	5326.9	4778.9	5421.3	5005.3	4913.2	5291.6	63499.8
(7) PROCESSED COMPOST (% SOLIDS)	48.1	48.0	50.6	49.4	51.0	55.5	56.6	55.9	56.4	55.2	47.5	49.7	52.0	
(8) PROCESSED COMPOST (DRY TONS)	2147.0	2204.1	2897.2	3086.8	2776.4	3682.6	2797.4	2979.4	2693.4	2981.6	2377.5	2443.8	2755.6	33067.1
(9) COMP. O.S.I. DISTRIBUTED (WET TONS)	235.2	215.7	456.4	327.4	610.7	724.9	1646.8	943.1	2974.6	870.1	1780.2	2110.3	1074.6	12895.2
(10) COMP. AUTHORITY USED (WET TONS)			800.0	2500.0	500.0	1000.0	4500.0	5679.0	4050.0	4200.0	800.0	5025.0	2905.4	29054.0
(11) O.S.I. COMP. INVENTORY (WET TONS)	3692.2	7517.3	11985.4	15406.7	19085.8	23199.8	19728.4	17793.8	14974.0	14682.5	16506.5	13606.8	14848.3	

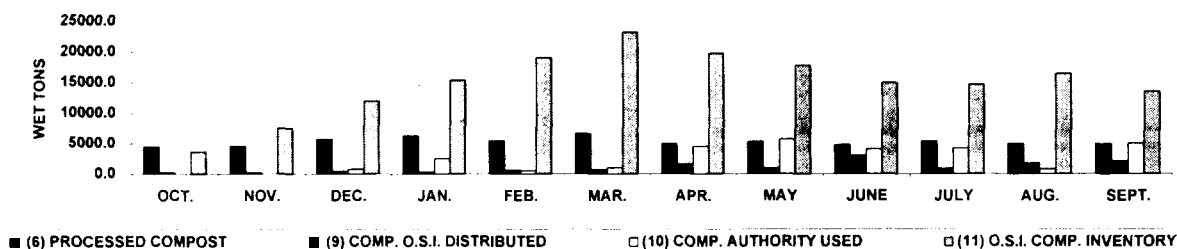
- (1) Monthly total, compost facility yardwaste feedstock
 (2) Monthly average, yardwaste percent dry solid
 (3) Monthly total, compost facility sludge feedstock
 (4) Monthly average, sludge percent dry solids
 (5) Monthly total, compost facility sludge feedstock (#3 times #4)

- (6) Monthly total, compost facility discharge (#1 plus #3) times 0.62
 (7) Monthly average, processed compost percent dry solids
 (8) Monthly total, compost facility processed compost (#6 times #7)
 (9) Compost Organic Supplements Inc. has distributed
 (10) Compost utilized by the Solid Waste Authority
 (11) Organic Supplements Inc. present compost inventory

COMPOST FACILITY PRODUCTION



COMPOST MARKETING PROGRAM



WASTEWATER RESIDUALS MANAGEMENT
FISCAL YEAR TO DATE FY94/95
PROCESSING COST SUMMARY

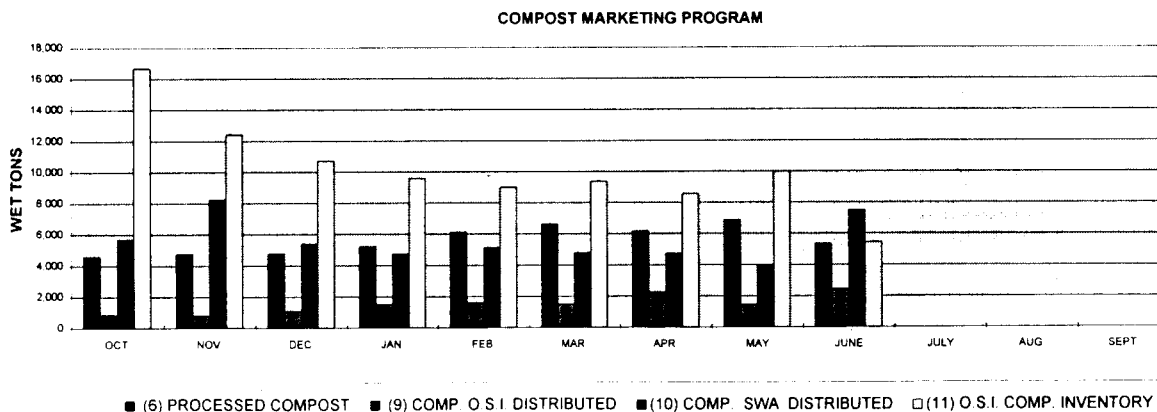
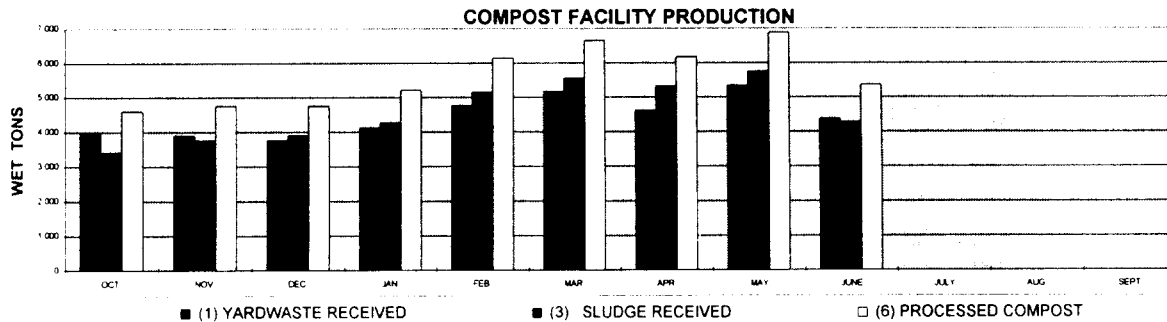
		SECOND NATURE COMPOST FACILITY		
ACCT#	ACCOUNT TITLE	BUDGET FY94/95	EXPENSE	FY94/95 BALANCE
51222	REGULAR SALARIES & WAGES	\$412,196.19	\$388,352.58	\$23,843.61
51301	-OTHER SALARIES AND WAGES	\$19,600.00	\$17,314.36	\$2,285.64
51400	REGULAR OVERTIME	\$44,318.19	\$42,649.55	\$1,668.64
51401	OTHER OVERTIME	\$2,000.00	\$695.49	\$1,304.51
52100	FICA TAXES	\$35,810.72	\$35,145.68	\$665.04
52200	RETIREMENT CONTRIBUTIONS	\$82,668.96	\$74,900.69	\$7,768.27
52300	LIFE, HEALTH, DISABILITY INSURANCE	\$0.00	\$60,790.47	(\$60,790.47)
52400	WORKERS COMPENSATION	\$0.00	\$102,778.84	(\$102,778.84)
52500	UNEMPLOYMENT COMPENSATION	\$954.35	\$452.00	\$502.35
52600	ACCRUED SICK & ANNUAL	\$6,073.14	\$18,706.05	(\$12,632.91)
TOTAL	PERSONNEL SERVICES	\$603,621.55	\$741,785.71	(\$138,164.16)
53403	ENVIRONMENTAL MONITORING	\$13,500.00	\$10,130.25	\$3,369.75
53405	CONTRACT PERSONAL SVCS	\$0.00	\$0.00	\$0.00
53406	OTHER CONTRACTUAL SVCS	\$20,000.00	\$5,326.02	\$14,673.98
54001	TRAVEL CLASS A & B	\$903.00	\$902.13	\$0.87
54002	TRAVEL CLASS C	\$250.00	\$226.20	\$23.80
54101	TELEPHONE	\$850.00	\$338.10	\$511.90
54301	ELECTRICITY	\$175,700.00	\$197,330.87	(\$21,630.87)
54302	WATER AND SEWERAGE	\$10,426.00	\$9,959.53	\$466.47
54403	EQUIPMENT RENTAL	\$6,426.00	\$50.00	\$6,376.00
54501	INSURANCE PREMIUMS	\$23,139.00	\$7,348.00	\$15,791.00
54601	R/M-OFFICE EQUIPMENT	\$1,400.00	\$0.00	\$1,400.00
54602	R/M-FACILITIES & STA EQPT	\$17,500.00	\$5,531.43	\$11,968.57
54603	R/M-MOBILE EQUIPMENT	\$38,569.00	\$36,897.66	\$1,671.34
54604	R/M-TIRES	\$400.00	\$360.00	\$40.00
54605	R/M-MISCELLANEOUS	\$4,000.00	\$58.30	\$3,941.70
54606	R/M-RADIO EQUIPMENT	\$3,300.00	\$1,894.97	\$1,405.03
54607	R/M-GROUNDS	\$0.00	\$200.00	(\$200.00)
54608	R/M-UTILITY SYSTEMS	\$200.00	\$121.00	\$79.00
54609	R/M COMPOST SYSTEMS	\$168,029.00	\$88,726.67	\$79,302.33
55101	OFFICE SUPPLIES	\$3,900.00	\$1,058.06	\$2,841.94
54701	PRINTING AND REPRODUCTION	\$1,500.00	\$934.35	\$565.65
54901	LICENSES AND PERMITS	\$500.00	\$100.00	\$400.00
55103	PHOTO SUPPLIES & DEVELOP	\$275.00	\$251.63	\$23.37
55201	GASOLINE	\$2,500.00	\$2,090.16	\$409.84
55202	DIESEL FUEL	\$40,000.00	\$22,938.15	\$17,061.85
55203	OIL & LUBE	\$12,460.00	\$12,636.74	(\$176.74)
55205	TIRES, TUBES, ETC.	\$10,100.00	\$10,086.73	\$13.27
55206	MINOR EQUIPMENT	\$17,856.00	\$10,935.80	\$6,920.20
55208	SAFETY EQUIPMENT	\$5,139.00	\$2,316.62	\$2,822.38
55209	OTHER SUPPLIES	\$10,282.00	\$9,961.35	\$320.65
55210	UNIFORMS	\$7,300.00	\$5,303.50	\$1,996.50
55304	OTHER MATERIALS	\$6,926.00	\$1,482.42	\$5,443.58
55401	BOOKS/PUBL/MEMBERSHIPS	\$1,100.00	\$624.20	\$475.80
55402	EDUCATIONAL EXPENSES	\$2,300.00	\$690.00	\$1,610.00
59962	MOBILE EQUIPMENT LABOR EXPENSE	\$67,950.00	\$74,435.01	(\$6,485.01)
59965	GROUNDS MAINT. LABOR EXPENSE	\$0.00	\$0.00	\$0.00
59966	FACILITY MAINT. LABOR EXPENSE	\$0.00	\$0.00	\$0.00
59960	ADMINISTRATION EXPENSE	\$0.00	\$0.00	\$0.00
TOTAL	OPERATING EXPENSES	\$674,680.00	\$521,245.85	\$153,434.15
TOTAL	PERSONNEL & OPERATING EXPENSE	\$1,278,301.55	\$1,263,031.56	\$15,269.99
ADDITIONAL ENCUMBERED EXPENSES				
R53403	ENVIRONMENTAL MONITORING	\$975	\$975	\$0.00
R53406	OTHER CONTRACTUAL SERVICES	\$39,000	\$0	\$39,000.00
R54608	R/M UTILITY SYSTEMS	\$615	\$615	\$0.00
R55304	OTHER MATERIALS	\$9,350	\$9,350	\$0.00
TOTAL	ADDITIONAL ENCUMBERED EXPENSES	\$49,940	\$10,940	\$39,000.00
STATISTICAL INFORMATION				
TOTAL	OPERATING EXPENSES		\$1,273,971.96	
TOTAL	CAPITOL DEPRECIATION EXPENSE		\$1,007,706.44	
TOTAL	CAPITAL AND OPERATING EXPENSES		\$2,281,678.40	
WASTEWATER WET TONNAGE PROCESSED			49,169.30	
YARDWASTE WET TONNAGE PROCESSED			53,268.80	
TOTAL	TONNAGE PROCESSED		102,438.10	
OVERALL COST PER WET TON PROCESSED			\$22.27	
OVERALL COST PER WET TON WASTEWATER RESIDUALS PROCESSED			\$46.40	
OVERALL COST PER DRY TON WASTEWATER RESIDUALS PROCESSED			\$365.39	
(AT 12.7% DRY SOLIDS)				
TOTAL	WASTEWATER YARDAGE PROCESSED	1500LBS/YARD	65,559.07	
TOTAL	YARDWASTE YARDAGE PROCESSED	550LBS/YARD	193,704.73	
TOTAL	COMBINED YARDAGE PROCESSED		259,263.79	
PERCENTAGE OF WASTEWATER RESIDUALS BY WEIGHT			48%	
PERCENTAGE OF YARDWASTE BY WEIGHT			52%	
CALCULATION OF WASTEWATER RESIDUALS GENERATORS TIPPING FEE				
TOTAL	FISCAL YEAR 94/95 EXPENDITURES			\$1,273,971.96
	INTERLOCAL AGREEMENT PROJECTED MAXIMUM TONNAGE OF WASTEWATER RESIDUALS (12%DRYSOLIDS)			59,143.00
OPERATING COST PER DRY TON WASTEWATER RESIDUALS PROCESSED AT 12.7% DRY SOLIDS				\$204.02
OPERATING COST PER WET TON WASTEWATER RESIDUALS				\$21.54
TIPPING FEE CALCULATION FOR WASTEWATER GENERATORS (57% OF COST)				\$12.28

**SECOND NATURE COMPOST FACILITY
FISCAL YEAR 1995-1996 ANNUAL SUMMARY**

MONTH	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	AVG.	TOTAL
(1) YARDWASTE RECEIVED (WET TONS)	4,002	3,903	3,763	4,125	4,755	5,160	4,618	5,333	4,367				4,447	40,026
(2) YARDWASTE (% SOLIDS)	53.8	57.0	57.7	60.0	61.9	60.4	60.1	55.8	51.9				57.6	
(3) SLUDGE RECEIVED (WET TONS)	3,409	3,756	3,895	4,269	5,143	5,542	5,321	5,747	4,275				4,595	41,356
(4) SLUDGE (% SOLIDS)	12.9	12.8	12.9	13.1	13.0	12.0	12.5	12.7	13.9				12.9	
(5) SLUDGE (DRY TONS)	440	480	503	561	668	666	664	731	593				589	5,305
(6) PROCESSED COMPOST (WET TONS)	4,595	4,749	4,748	5,204	6,137	6,635	6,162	6,869	5,358				5,606	50,457
(7) PROCESSED COMPOST (% SOLIDS)	53.0	48.6	51.5	54.8	54.3	60.4	51.7	56.0	54.3				53.8	
(8) PROCESSED COMPOST (DRY TONS)	2,435	2,310	2,445	2,850	3,332	4,010	3,186	3,847	2,907				3,036	27,323
(9) COMP. O.S.I. DISTRIBUTED (WET TONS)	839	773	1,061	1,478	1,588	1,482	2,239	1,450	2,431				1,482	13,340
(10) COMP. SWA DISTRIBUTED (WET TONS)	5,690	8,221	5,395	4,728	5,121	4,788	4,731	4,000	7,478				5,573	50,153
(11) O.S.I. COMP. INVENTORY (WET TONS)	16,658	12,413	10,705	9,568	8,996	9,360	8,553	9,972	5,421				10,183	

- (1) Monthly total, compost facility yardwaste feedstock
 (2) Monthly average, yardwaste percent dry solid
 (3) Monthly total, compost facility sludge feedstock
 (4) Monthly average, sludge percent dry solids
 (5) Monthly total, compost facility sludge feedstock (#3 times #4)
 (6) Monthly total, compost facility discharge (#1 plus #3) times 0.62

- (7) Monthly average, processed compost percent dry solids
 (8) Monthly total, compost facility processed compost (#6 times #7)
 (9) Compost Organic Supplements Inc. has distributed
 (10) Compost utilized by the Solid Waste Authority
 (11) Inventory = #11 + #8 - #10 - #9 - overs from screen
 (12) Includes depletion of the Dyer stockpile. (5,000 TONS)



WASTEWATER RESIDUALS MANAGEMENT
FISCAL YEAR TO DATE FY95/96
PROCESSING COST ANALYSIS AS OF JULY 1, 1996

		SECOND NATURE COMPOST FACILITY		
ACCT#	ACCOUNT TITLE	BUDGET FY94/95	EXPENSE	FY94/95 BALANCE
51222	REGULAR SALARIES & WAGES	\$441,682.17	\$317,633.66	\$124,048.51
51301	OTHER SALARIES AND WAGES	\$3,155.60	\$3,154.80	\$0.80
51400	REGULAR OVERTIME	\$49,126.66	\$18,659.83	\$30,466.83
51401	OTHER OVERTIME	\$502.40	\$501.90	\$0.50
52100	FICA TAXES	\$41,004.52	\$25,469.21	\$15,535.31
52200	RETIREMENT CONTRIBUTIONS	\$94,225.50	\$59,933.89	\$34,291.61
52300	HEALTH INSURANCE	\$0.00	\$37,620.00	(\$37,620.00)
52400	WORKERS COMPENSATION	\$0.00	\$58,348.71	(\$58,348.71)
52500	UNEMPLOYMENT COMPENSATION	\$1,348.04	\$1,348.04	\$0.00
52600	ACCRUED SICK & ANNUAL	<u>\$12,036.28</u>	<u>\$0.00</u>	<u>\$12,036.28</u>
TOTAL	PERSONNEL SERVICES	\$643,081.17	\$522,670.04	\$120,411.13
53403	ENVIRONMENTAL MONITORING	\$13,800.00	\$7,395.00	\$6,405.00
53405	CONTRACT PERSONAL SVCS	\$0.00	\$0.00	\$0.00
53406	OTHER CONTRACTUAL SVCS	\$15,000.00	\$5,245.17	\$9,754.83
54001	TRAVEL CLASS A & B	\$0.00	\$0.00	\$0.00
54002	TRAVEL CLASS C	\$150.00	\$122.90	\$27.10
54101	TELEPHONE	\$4,920.00	\$805.52	\$4,114.48
54301	ELECTRICITY	\$0.00	\$123,000.00	(\$123,000.00)
54302	WATER AND SEWERAGE	\$11,400.00	\$5,533.15	\$5,866.85
54403	EQUIPMENT RENTAL	\$196.00	\$0.00	\$196.00
54501	INSURANCE PREMIUMS	\$0.00	\$17,369.00	(\$17,369.00)
54601	R/M-OFFICE EQUIPMENT	\$1,400.00	\$0.00	\$1,400.00
54602	R/M-FACILITIES & STA EQPT	\$25,000.00	\$24,916.17	\$83.83
54603	R/M-MOBILE EQUIPMENT	\$76,470.00	\$65,961.66	\$10,508.34
54604	R/M-TIRES	\$0.00	\$0.00	\$0.00
54605	R/M-MISCELLANEOUS	\$2,000.00	\$1,081.00	\$919.00
54606	R/M-RADIO EQUIPMENT	\$1,940.00	\$1,024.61	\$915.39
54607	R/M-GROUNDS	\$0.00	\$0.00	\$0.00
54608	R/M-UTILITY SYSTEMS	\$0.00	\$0.00	\$0.00
54609	R/M COMPOST SYSTEMS	\$215,982.00	\$124,389.44	\$91,592.56
55101	OFFICE SUPPLIES	\$1,539.00	\$785.16	\$753.84
54701	PRINTING AND REPRODUCTION	\$1,150.00	\$515.76	\$634.24
54901	LICENSES AND PERMITS	\$0.00	\$0.00	\$0.00
55103	PHOTO SUPPLIES & DEVELOP	\$126.00	\$0.00	\$126.00
55201	GASOLINE	\$3,415.00	\$1,720.72	\$1,694.28
55202	DIESEL FUEL	\$24,470.00	\$18,864.22	\$5,605.78
55203	OIL & LUBE	\$14,144.00	\$8,358.74	\$5,785.26
55205	TIRES, TUBES, ETC	\$17,680.00	\$8,352.14	\$9,327.86
55206	MINOR EQUIPMENT	\$14,350.00	\$9,142.51	\$5,207.49
55208	SAFETY EQUIPMENT	\$7,580.00	\$1,713.00	\$5,867.00
55209	OTHER SUPPLIES	\$7,580.00	\$4,587.31	\$2,992.69
55210	UNIFORMS	\$6,116.00	\$4,376.10	\$1,739.90
55304	OTHER MATERIALS	\$9,576.00	\$53.74	\$9,522.26
55401	BOOKS/PUBL/MEMBERSHIPS	\$1,300.00	\$802.90	\$497.10
55402	EDUCATIONAL EXPENSES	\$1,600.00	\$550.00	\$1,050.00
59962	MOBILE EQUIPMENT LABOR EXPENSE	\$68,424.00	\$87,363.19	(\$18,939.19)
59965	GROUNDS MAINT. LABOR EXPENSE	\$0.00	\$0.00	\$0.00
59966	FACILITY MAINT. LABOR EXPENSE	\$0.00	\$0.00	\$0.00
59960	ADMINISTRATION EXPENSE	<u>\$0.00</u>	<u>\$0.00</u>	<u>\$0.00</u>
TOTAL	OPERATING EXPENSES	\$547,308.00	\$524,029.11	\$23,278.89
TOTAL	PERSONNEL & OPERATING EXPENSE	\$1,190,389.17	\$1,046,699.15	\$143,690.02
ADDITIONAL ENCUMBERED EXPENSES				
	ENVIRONMENTAL MONITORING	\$1,675.00	\$0.00	\$1,675.00
	OTHER CONTRACTUAL SERVICES	\$7,124.75	\$899.60	\$6,225.15
	R/M FACILITIES AND STA EQPT	\$11,624.84	\$11,624.84	\$0.00
	R/M UTILITY SYSTEMS	\$0.00	\$0.00	\$0.00
	R/M COMPOST SYSTEMS	\$26,969.50	\$26,297.00	\$672.50
	MINOR EQUIPMENT	\$2,060.40	\$2,060.40	\$0.00
	OTHER MATERIALS	\$0.00	\$0.00	\$0.00
TOTAL	ADDITIONAL ENCUMBERED EXPENSES	\$49,454.49	\$40,881.84	\$8,572.65
EXPENSES	YEAR TO DATE EXPENSE SUMMARY		\$1,087,580.99	
	COST FOR LANFILLING A PORTION OF WASTEWATER RESIDUALS RECEIV		\$74,921.85	
	YEAR TO DATE EXPENSE SUMMARY		\$1,162,502.84	
REVENUE	FIXED ASSET REVENUE		\$635,445.00	
	TIPPING FEE REVENUE		\$588,699.94	
	CAPACITY EXCEDENCE REVENUE		\$332,073.50	
	COMPOST SALES REVENUE SUMMARY		\$13,340.00	
	YEAR TO DATE REVENUE SUMMARY		\$1,569,558.44	
YEAR TO DATE	PROFIT OR LOSS		\$407,055.59	
	PERCENTAGE OF PROFIT VS. EXPENSES		37.43%	
	TOTAL TONNAGE WASTEWATER RESIDUALS DELIVERED TO THE AUTHORITY			48,096
	TOTAL TONNAGE WASTEWATER RESIDUALS SLUDGE COMPOSTED			41,335
	TOTAL TONNAGE WASTEWATER RESIDUALS SLUDGE BYPASSED TO THE CLASS I LANDFILL			6,762
	TOTAL TONNAGE WASTEWATER RESIDUALS NO TIP FEE RECEIVED (SEACOAST UTILITIES)			5,328
	TOTAL TONNAGE WASTEWATER RESIDUALS EXCEDENCE PER INTERLOCAL AGREEMENTS			6,038
	TOTAL TONNAGE YARDWASTE COMPOSTED			40,026
	OVERALL TOTAL FEEDSTOCK TONNAGE COMPOSTED			81,361
	OPERATING COST PER WET TON FEEDSTOCK COMPOSTED			\$13.37
	OPERATING COST PER WET TON WASTEWATER RESIDUALS COMPOSTED			\$26.31
	CURRENT WET TON TIP FEE CALCULATION FOR WASTEWATER RESIDUALS GENERATORS (57% OF COST)			\$15.00

**SOLID WASTE AUTHORITY OF PALM BEACH COUNTY
ANNUAL VEGETATION DISPOSITION SUMMARY
FISCAL YEAR 95-96**

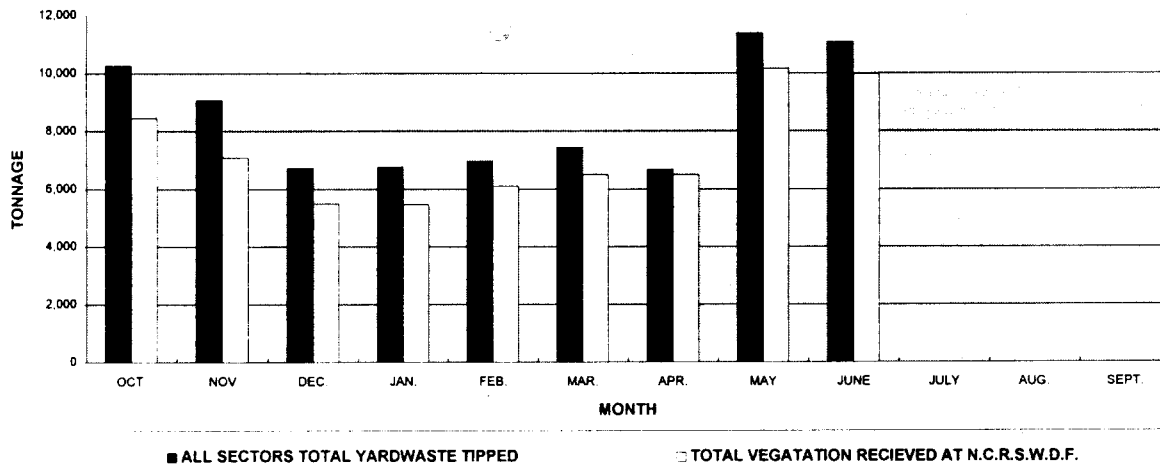
MONTH	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	AVG	TOTAL
VEGETATION TIPPED AT TRANSFER STATIONS (1) (wet tons)	8,883	7,762	5,655	5,523	5,961	6,351	5,731	10,183	9,904				7,328	65,953
VEGETATION TIPPED AT N.C.R.S.W.D.F. (1) (wet tons)	1,376	1,303	1,071	1,236	999	1,081	943	1,182	1,160				1,150	10,352
ALL SECTORS TOTAL VEGETATION TIPPED AT THE SOLID WASTE AUTHORITY (1)	10,259	9,065	6,725	6,760	6,960	7,432	6,674	11,366	11,064				8,478	76,304
ALL SECTORS TOTAL VEGETATION TIP FEE (2)	\$228,660	\$203,455	\$150,518	\$154,371	\$157,331	\$168,090	\$172,138	\$254,449	\$247,272				\$192,920	\$1,736,284
VEGETATION DELIVERED FROM TRANSFER STATIONS TO N.C.R.S.W.D.F. (wet tons) (3)	7,065	5,779	4,416	4,230	5,091	5,416	5,549	8,972	8,799				6,146	55,316
TOTAL VEGETATION RECEIVED AT N.C.R.S.W.D.F. FOR MULCHING (wet tons)	8,441	7,082	5,486	5,466	6,090	6,497	6,492	10,154	9,959				7,296	65,668
PRIVATE CONTRACTOR TOTAL MONTHLY MULCHING COSTS	\$33,478	\$105,629	\$32,450	\$46,021	\$56,326	\$55,112	\$52,195	\$49,498	\$53,100				\$53,757	\$483,811
AVERAGE POUNDS PER CUBIC YARD INCOMING N.C.R.S.W.D.F. VEGETATION	514	137	345	242	221	240	254	418	383				306	
MULCHING COST PER TON OF VEGETATION RECEIVED AT N.C.R.S.W.D.F. (wet tons)	\$3.97	\$14.92	\$5.91	\$8.42	\$9.25	\$8.48	\$8.04	\$4.87	\$5.33				\$7.37	
MULCHING COST PER TON OF YARDWASTE PROCESSED BY CONTRACTOR (wet tons) (4)					\$5.66	\$5.50	\$5.63	\$5.36	\$6.12				\$5.65	
MONTHLY COST PER TON OF MULCH PRODUCED BY CONTRACTOR (wet tons)	\$6.80	\$27.06	\$8.62	\$9.71	\$11.36	\$10.68	\$10.34	\$6.06	\$7.21				\$10.87	\$97.85
MULCH DELIVERED TO COMPOST FACILITY (wet tons)	4,002	3,903	3,763	4,125	4,755	5,160	4,618	5,333	4,367				4,447	40,026
MULCH SENT TO OKEELANTA/OSCEOLA CORP (wet tons)	920	0	0	612	204	0	428	2,840	3,002				890	8,007
MULCH UTILIZED BY S.W.A. OPERATIONS OTHER THAN COMPOST FACILITY (wet tons)														0
MULCH DELIVERED TO THE CITIZEN'S GIVE-AWAY AREA (wet tons)														0

(1) THIS INFORMATION IS TAKEN FROM A REPORT TITLED "INCOMING M.S.W. BY SITE BY MONTH".

(2) THIS INFORMATION IS TAKEN FROM A REPORT TITLED "WISO47C". THIS INCLUDES THE CATEGORIES OF "VEGETATION" AND "COMPACTED VEGETATION".

(3) THIS INFORMATION IS TAKEN FROM A REPORT TITLED "T/S TRANSPORTED TONNAGE BY MONTH".

(4) THIS INFORMATION IS ASSUMING AN AVERAGE OF 300 LBS/YARD FOR SINGLE GROUND AND 500LBS/YARD FOR DOUBLE GROUND.



VEGETATION MANAGEMENT
FISCAL YEAR TO DATE FY95/96
PROCESSING COST ANALYSIS AS OF JULY 1 1996

		SECOND NATURE COMPOST FACILITY		
ACCT#	ACCOUNT TITLE	BUDGET FY94/95	EXPENSE	FY94/95 BALANCE
51222	REGULAR SALARIES & WAGES	\$125,617.03	\$104,834.33	\$20,782.70
51400	REGULAR OVERTIME	\$13,000.00	\$14,970.19	(\$1,970.19)
52100	FICA TAXES	\$10,604.20	\$9,258.41	\$1,345.79
52200	RETIREMENT CONTRIBUTIONS	\$24,366.71	\$21,127.19	\$3,239.52
52300	HEALTH INSURANCE	\$0.00	\$11,025.00	(\$11,025.00)
52400	WORKERS COMPENSATION	\$0.00	\$20,563.13	(\$20,563.13)
52500	UNEMPLOYMENT COMPENSATION	\$351.72	\$351.72	\$0.00
	LIFE AND ACCIDENTAL DEATH INS.	0.00	339.66	(\$339.66)
	LONG TERM DISABILITY	\$0.00	\$429.82	(\$429.82)
	SHORT TERM DISABILITY AND E.A.P	\$0.00	\$1,314.00	(\$1,314.00)
52600	ACCRUED SICK & ANNUAL	\$3,140.43	\$0.00	\$3,140.43
TOTAL	PERSONNEL SERVICES	\$177,080.09	\$184,213.45	(\$7,133.36)
53403	ENVIRONMENTAL MONITORING	\$0.00	\$0.00	\$0.00
53405	CONTRACT PERSONAL SVCS	\$141,200.00	\$28,162.08	\$113,037.92
53406	OTHER CONTRACTUAL SVCS	\$1,131,550.00	\$483,808.70	\$647,741.30
54001	TRAVEL: CLASS A & B	\$0.00	\$0.00	\$0.00
54002	TRAVEL: CLASS C	\$0.00	\$0.00	\$0.00
54101	TELEPHONE	\$250.00	\$0.00	\$250.00
54301	ELECTRICITY	\$0.00	\$0.00	\$0.00
54302	WATER AND SEWERAGE	\$0.00	\$0.00	\$0.00
54403	EQUIPMENT RENTAL	\$9,500.00	\$4,080.00	\$5,420.00
54404	SANITARY UNIT RENTAL	\$588.00	\$245.00	
54501	INSURANCE PREMIUMS	\$0.00	\$0.00	\$0.00
54601	R/M-OFFICE EQUIPMENT	\$0.00	\$0.00	\$0.00
54602	R/M-FACILITIES & STA EQPT	\$500.00	\$0.00	\$500.00
54603	R/M-MOBILE EQUIPMENT	\$42,480.00	\$41,614.72	\$865.28
54604	R/M-TIRES	\$0.00	\$0.00	\$0.00
54605	R/M-MISCELLANEOUS	\$1,000.00	\$0.00	\$1,000.00
54606	R/M-RADIO EQUIPMENT	\$0.00	\$357.51	(\$357.51)
54607	R/M-GROUNDS	\$0.00	\$0.00	\$0.00
	R/M-UTILITY SYSTEMS	\$0.00	\$0.00	\$0.00
54609	R/M COMPOST SYSTEMS	\$50,000.00	\$0.00	\$50,000.00
55101	OFFICE SUPPLIES	\$0.00	\$0.00	\$0.00
	PRINTING AND REPRODUCTION	\$0.00	\$0.00	\$0.00
	LICENSES AND PERMITS	\$0.00	\$0.00	\$0.00
55103	PHOTO SUPPLIES & DEVELOP.	\$0.00	\$0.00	\$0.00
55201	GASOLINE	\$1,140.00	\$1,418.98	(\$278.98)
55202	DIESEL FUEL	\$23,680.00	\$18,824.43	\$4,855.57
55203	OIL & LUBE	\$10,000.00	\$5,876.54	\$4,123.46
55205	TIRES, TUBES, ETC.	\$1,500.00	\$396.50	\$1,103.50
55206	MINOR EQUIPMENT	\$5,200.00	\$833.19	\$4,366.81
55208	SAFETY EQUIPMENT	\$900.00	\$233.75	\$666.25
55209	OTHER SUPPLIES	\$5,000.00	\$1,568.85	\$3,431.15
55210	UNIFORMS	\$3,040.00	\$650.25	\$2,389.75
55304	OTHER MATERIALS	\$90,000.00	\$0.00	\$90,000.00
55401	BOOKS/PUBL/MEMBERSHIPS	\$0.00	\$0.00	\$0.00
55402	EDUCATIONAL EXPENSES	\$900.00	\$0.00	\$900.00
59962	MOBILE EQUIPMENT LABOR EXPENSE	\$22,238.00	\$55,848.36	(\$33,610.36)
59965	GROUNDS MAINT. LABOR EXPENSE	\$0.00	\$0.00	\$0.00
59966	FACILITY MAINT. LABOR EXPENSE	\$0.00	\$0.00	\$0.00
59960	ADMINISTRATION EXPENSE	\$0.00	\$0.00	\$0.00
TOTAL	OPERATING EXPENSES	\$1,540,666.00	\$643,918.86	\$896,404.14
TOTAL	PERSONNEL & OPERATING EXPENSE	\$1,717,746.09	\$828,132.31	\$889,270.78
ASSET DEPRECIATION (STRAIGHT LINE DEPRECIATION) TWENTY YEAR ASSETS TEN YEAR ASSETS SEVEN YEAR ASSETS FIVE YEAR ASSETS (RESIDUAL VALUES NOT INCLUDED)				
EXPENSES	YEAR TO DATE TOTAL EXPENSES		\$828,132.31	
	COST FOR TRANSPORT FROM TRANSFER STATIONS		\$719,121.00	
	YEAR TO DATE TOTAL EXPENSES		\$1,547,253.31	
REVENUE	FIXED ASSET REVENUE		\$0.00	
	TIPPING FEE REVENUE		\$1,641,700.00	
	MULCH SALES REVENUE		\$12,010.50	
	YEAR TO DATE TOTAL REVENUES		\$1,653,710.50	
YEAR TO DATE	PROFIT OR LOSS		\$106,457.19	
PERCENTAGE OF BUDGET EXPENDED				48.23%
PROJECTED FISCAL EXPENDITURE BASED ON YEAR TO DATE EXPENSES				\$1,074,687
TOTAL TONNAGE VEGATION DELIVERED FROM TRANSFER STATIONS				55,317
TOTAL TONNAGE VEGATION DELIVERED DIRECT TO SITE SEVEN				10,351
TOTAL TONNAGE VEGATION DELIVERED TO VEGATION PROCESSING AREA AT N.C.R.S.W.D				65,668
OPERATING COST S.W.A. OPERATIONS PER WET TON OF VEGATION DELIVERED TO N.C.R.S.				\$5.24
CONTRACT MULCHING COSTS PER WET TON OF FEEDSTOCK DELIVERED TO N.C.R.S.W.D.				\$7.37
TOTAL OPERATING COST PER WET TON FEEDSTOCK DELIVERED TO N.C.R.S.W.D.				\$12.61