Appendix A

Cost calculations for each of the examples presented
in the Current Biosolids Management Practices section.

(In-vessel) Composting Calculations 1999 FY

From: Northeast Compost Sales (Fiscal Year 1999) May 98-April 99
Biosolids Utilization Method Information Sheet Composting Plant
Comparitive Schedule of Operating Expenses by Budget Unit
Northeast (6MGD)

8640 yrd^3 sold
36579 bags sold
1980 yrd^3 in-house
83 bags in-house

Totals	
10620	yrd^3
36662	bags

References
1 bag = 1.5 ft^3 = 40 lb
1 yrd = 3 ft
1 yrd^3 = 27 ft^3

Bulk Total (10620 yrd^3)*(27 ft^3/yrd^3) = 286,740 ft^3

Bag Total (36,662 bag)*(1.5 ft3/bag) = 54,993 ft^3

Total Volume = 341,733 ft^3

Volume by Weight Basis = (341,733 ft^3)*(40 lbs/1.5 ft^3) = 9,112,880 lbs

(9,112,880 lbs)*(1 ton / 2000 lbs) = **4556tons**

4556 Tons of Compost Produced in 1999

1034 Dry tons of sludge generated by Northeast Facility used in compost production in 1999
3521 Dry tons of value added products used in compost production in 1998

1999 Compost Sales Total Revenue = $ 79,185

($ 79,185 / 4556 tons) = **$17.38** per ton of compost

1034 tons of sludge were utilized in the production of compost. The majority of compost is comprised of recycled shredded pallets and wood chips.

Estimated Capitalization Cost	
Captial Cost	$2,600,000
Interest Rate	8%
Life	20 years
Annual Cost	($264,815.74)

Composting Calculations 1998 FY

From: Brunswick Academy Creek (13 MGD)

Compost Volume = (40 $yrds^3$/day)*(5 days/wk)*(52 wk/yr)*(27ft^3/yrd^3)

Total Volume = 280,800 ft^3

Volume by Weight Basis = (280,800 ft^3)*(40 lbs/1.5 ft^3) = 7,488,000 lbs

(7,488,000 lbs)*(1 ton / 2000 lbs) = **3744tons**

3,744 Tons of Compost Produced in 1998

2400 Dry tons of sludge generated by Brunswick Facility used in compost production in 1998
1344 Dry tons of value added products used in compost production in 1998

1998 Compost Sales Total Revenue = $ 79,185

($ 79,185 / 4556 tons) = **$17.38** per ton of compost

Costs include the dewatering and all solids handling

Revenue for the facility is aquired in two ways. Compost sales to the public and tipping fees for wood debris.

Compost Revenue	($5 / ticket) * (2620 tickets sold) = $13,100
Tipping Fees	$64,475
Total Revenue	**$77,575**

Estimated Capitalization Cost	
Captial Cost	$4,600,000
Interest Rate	8%
Life	20 years
Annual Cost	($468,520.16)

Pelletizing Calculations 1998 FY

From: Biosolids Utilization Method Information Sheet Pelletizing Plant
Comparitive Schedule of Operating Expenses by Budget Unit
W.B. Casey (15 MGD)

15 tons of pellets produced 6 days a week, 12 months a year
4320 tons of pellets produced.

Operational cost for FY 98 = **1,133,432**

($1,133,432 /yr) / (4320 tons/yr) = **$262.37** per ton of pellets produced

Besides chemicals, there are no additives to pelletized sludge. Sludge utilzation is equal to the amount of pellets produced.

Estimated Capitalization Cost	
Captial Cost	$3,900,000
Interest Rate	8%
Life	20 years
Annual Cost	($397,223.61)

Incineration Calculations 1998 FY

From: Manuel Mathews, Wastewater Operations Superintendent, Cobb County Georgia
R.L. Sutton (40MGD)

Operational Expenses				
Utilities	Natural Gas		$	191,635.91
	Electricity		$	33,000.00
Fees	Air Fee to EPD		$	1,000.00
	Ash Trucking Costs		$	8,100.00
	Ash Tipping Fees		$	26,040.00
Salaries	Eq. Operator Salary		$	12,888.00
	Operator Salaries		$	62,667.54
		Total	**$**	**335,331.45**
Maintanance Costs				
Repairs	CCWS Central Maintanance Crew		$	6,140.16
	RLS Preventative Maintanance		$	3,070.08
	CCWS Instrumentation		$	8,049.60
	Outside Repair, Maint. & Misc. Parts		$	154,227.00
		Total	**$**	**171,486.84**
Total Operational & Maintanance Cost			**$**	**506,818.29**
Total Dry Tons FY 98				12,209.25
Cost per dry ton			$	41.51

Ash weight is 10-12% of original sludge (11%) 1343.01 tons

Estimated Capitalization Cost	
Capital Cost	4 million dollars
Interest Rate	8%
Life	20 years
Annual Cost	($407,408.84)

Land Application Calculations 1998 FY

From: Eric Hancock, Wastewater Operations Superintendent, DeKalb County Georgia
Pole Bridge Creek (20MGD)

2 Biosolids Spreading Vehicles

Estimated Capitalization Cost	
Captial Cost	$500,000
Interest Rate	8%
Life	10 years
Annual Cost	($74,514.74)