7 Residues and Recovered Materials

7.1 Material Quantities

Table 7-1 provides the estimated material quantities for not only the MSW and C&D wastes delivered to the processing facilities along with the fuels produced, but also the other recovered materials and residues that need to be handled.

Table 7-1 Estimated Material Quantities

Material	Tons	Percentage
Newport Facility Just Servicing Rock-Tenn		
MSW Received	486,000	100 of Total
Bulky Waste Residue	36,450	7.5 of MSW Received
MSW Processed	449,550	92.5 of MSW Received
RDF Produced	394,200	87.7 of MSW Processed
Aluminum Recovered	900	0.2 of MSW Processed
Ferrous Recovered	15,300	3.4 of MSW Processed
Process Residue	39,100	8.7 of MSW Processed
Rock-Tenn Power Plant		
Biomass Fuel Consumed	394,200	100 of Total
Ash Remaining	118,200	30 of Biomass Fuel
Assumed C&D Processing Facility Sizing		
C&D Waste Received	250,000	100
Biomass Fuel Produced	125,000	50
Metals Recovered	17,500	7
Aggregate Recovered	20,000	8
By-Pass/Process Residue	87,500	35

The percentages, and therefore tonnages, at the Newport Facility are based upon the historical averages assuming that combustion capacity is available for the RDF produced (only a reasonable average amount of MSW is by-passed as bulky waste).

The projected percentage and tonnage of ash from Rock-Tenn is based upon an average amount of ash produced at the Xcel combustion plant in Mankato (Wilmarth). This includes the moisture in the ash that results from the quenching process after combustion. This is a quite dense material, weighing much more per cubic yard than the RDF. The ash will occupy less airspace in a landfill than the same weight of MSW.

The material quantities for the C&D Processing Facility are based upon data Foth & Van Dyke obtained from the Metro Waste Authority, Des Moines, Iowa, from the C&D processing facilities located in Des Moines. This data includes actual production quantities from two operating C&D processing facilities and C&D waste composition specific to that area. These are

very general numbers for the Twin Cities C&D market area at this point in time and are reasonable assumptions for this feasibility level planning process. It is recommended that more specific information be developed for this Twin Cities area prior to developing a facility. It should also be noted that the 35 percent residue percentage assumed from the C&D processing facility is higher than may be possible in a final analysis. This analysis assumes that no alternative daily cover products are produced which could significantly lower the percentage to be landfilled and therefore reduce disposal costs.

7.2 Disposal Options and Costs

All of the residues from these facilities already have a history of regulatory control and proper management and disposal in the state of Minnesota. Process residues from the Newport Facility are currently landfilled in an MSW landfill. This is assumed to continue for purposes of this analysis. Process residues from the C&D Processing Facility can be landfilled in a C&D landfill, the location the materials would be managed if not recovered.

The ash from the Rock-Tenn Power Plant could some day be beneficially re-used, but for purposes of this feasibility analysis, the ash is assumed to be disposed in an ash monofill, similar to how ash is currently handled at other locations in Minnesota.

Table 7-2 provides the assumed tipping fees for disposal of these various residues.

Table 7-2 Residue Disposal Fees

Material	Type of Facility	Assumed Cost per Ton
Newport By-Pass Residue	Sanitary Landfill	$42[1]
Newport Process Residue	Sanitary Landfill	$25
Rock-Tenn Ash	Ash Monofill	$30
C&D By-Pass/Process Residue	C&D Landfill	$25

[1] Includes various governmental fees.

7.3 Recovered Materials Revenues

The Newport Facility routinely recovers ferrous and aluminum during MSW processing and transports these materials to local metals markets. For purposes of this feasibility analysis, Foth & Van Dyke assumes this process will continue. Conservative prices for material revenues (net of transportation costs) will be used—including $800 per ton for aluminum and $25 per ton for ferrous metals.

Recovered materials at the C&D processing facility will include metals (ferrous and non-ferrous) as well as concrete and brick as an aggregate material. The metal prices per ton will vary significantly depending on the type of metal and characteristics. For purposes of this analysis, conservative prices will be used of $60 per ton. The aggregate value is assumed to be $2 per ton.