

SECTION X
ECONOMIC SUMMARY

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A. General

From Appendix C - Tabulation of Total Sludge Dewatering and Disposal Costs - Pages 1 of 3 and 2 of 3, a "bottom" line entitled "Total/Year" is presented. The techniques used to arrive at these totals for the twelve combinations of manufacturers and types of equipment included some basic unit transportation and unit disposal costs to make a valid comparison among them in similar terms. The tabulation serves its purpose and is adequate to establish an estimated budget, first costs and annual costs, for the Commonwealth.

This section then, is intended to present a range of monetary needs to enable the PA D.E.R. to plan for financing a total dewatered sludge disposal system, from engineering and contract type land disposal through start-up, followed by annual costs of operation and maintenance for the design life of the facility, twenty years.

B. Sludge Dewatering Equipment

As a result of this study, belt filter press manufacturers that feel they can achieve at least a 12% dry solids content sludge (because of landfill criteria) under a performance specification, and are willing to post a bond against an on-site equipment performance test, should be encouraged to bid on the dewatering equipment.

For the basic sludge dewatering apparatus, from the documentation cited above, the following "operative status" cost range emerges:

	<u>Low</u>	<u>High</u>
Manufacturers' Charge, Delivered, Operative:	\$140,000	\$355,000
Building Costs (Appendix C, Page 2, Line 5):	0	0
Repiping & Valving (Appendix C, Page 2, Line 3):	50,000	50,000
Construction of Supports, Conveyors, Partitions:	100,000	150,000
Controls Alterations:	<u>20,000</u>	<u>20,000</u>
Total Estimated On-site Construction Cost:	\$310,000	\$575,000
35% Engineering, Legal, Contingencies, Inspection, Tests:	<u>110,000</u>	<u>200,000</u>
Total Estimated On-site Construction Costs:	\$420,000	\$775,000
Say :	\$420,000	\$780,000

C. Sludge Transportation Costs

The cost of transporting the dewatered sludge cake from the above plant equipment to a permitted disposal site will of course depend on the dryness, and therefore the weight and volume of the cake.

In view of the fact that no valid land disposal sites of the eighteen examined thus far have proceeded to a land cost status because of initial adamance on the part of most landowners, we will continue a transportation cost comparison on the basis of trucking to the Pellegrine landfill site (see page VII-1).

The lowest acceptable first cost units should produce a cake solids of 12.25%. However, the higher first cost Parkson units should produce a cake solids of 20.5%. Both percent solids figures came from their respective laboratory tests.

The effect of percent solids achieved on the transportation costs is then quite evident:

<u>Komline @ 12.25%</u>	<u>Parkson @ 20.5%</u>
\$191,000/year	\$121,000/year

In the closing summarization of this section of the report, the above will be added to the respective first costs, as well as to the disposal costs to arrive at a range of total costs.

D. Sludge Disposal Costs

As explained in Part C, above, not being in a position to locate a landfill site at this time, the Pellegrine site and his quotation will be utilized to capitulate this cost summary.

Percentage solids achievable again substantially affect the disposal costs thusly:

<u>Komline @ 12.25%</u>	<u>Parkson @ 20.5%</u>
\$110,000/year	\$66,000/year

E. Cost Summarization

All design and construction activities should be completed in one year. The first cost should then be (from Part B, above) from \$420,000 to \$780,000.

Thereafter annual operating, maintenance, transportation and disposal costs will have to be budgeted, as follows (from Appendix C)

	Low First Cost - <u>Komline</u>	High First Cost - <u>Parkson</u>
Labor	\$ 7,400	\$ 29,700
Power	2,100	6,000
Chemicals	260,000	260,000
Maintenance & Repairs	6,400	12,900
Sludge Transportation	191,000	121,000
Sludge Disposal	<u>110,000</u>	<u>66,000</u>
Annual Costs:	\$576,900	\$495,000
Say :	\$580,000	\$500,000

The following are therefore our best current estimates of annual cost:

Capital Cost:	\$420,000	to	\$780,000
Annual Cost : (Years 2 through 20)			

*Operating Costs	\$580,000	to	\$500,000
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* Operating Costs will require adjustment based on inflation.