

APPENDIX C
TABULATION OF TOTAL
SLUDGE DEWATERING
AND
DISPOSAL COSTS

APPENDIX C. TABULATION OF TOTAL SLUDGE DEWATERING AND DISPOSAL COSTS

| | BELT FILTER PRESSES | | | | | | | | | | CENTRI-FUGES | FILER PLATE PRESS | Ranges (excludes highest and lowest) |
|-----------------------------|----------------------|----------------------|----------------------|------------------------|----------------------|----------------------|----------------|---------------|-----------------------|-------------------|--------------|-------------------|--------------------------------------|
| | Envirex Filter Press | Komline Filter Press | Euramca Filter Press | Passavant Filter Press | Parkson Filter Press | Infilco Filter Press | UNKNOWN | VACUUM FILTER | SPECIAL VACUUM FILTER | Bird* Centri-fuge | | | |
| Annual Amort. Cost | 28,100 | 13,340 | 25,535 | 23,534 | 27,040 | 16,198 | 29,660 | 52,785 | 154,251 | 20,010 | 26,440 | 64,790 | 16,198 - 64,790 |
| Labor @ \$7.50/hr | 21,675 | 7,425 | 29,700 | 22,275 | 29,700 | 59,400 | Incl. Below | 11,475 | 59,400 | 2,475 | 3,713 | 14,850 | 7,425 - 29,700 |
| Power @ \$0.03/KWH | 4,341 | 2,110 | 4,515 | 4,489 | 5,953 | 886 (1) | Incl. Below | 57,550 | 95,278 | 7,973 | 5,315 | 6,198 | 2,110 - 57,550 |
| Chemicals | 0 | 259,806 | 208,000 | 69,300 | 259,875 | 81,180 | 152,931 | 0 | 29,040 | 8,100 | 940,000 | 0 | 69,300 - 259,806 |
| Maint. and Repairs | 25,900 | 6,450 | 19,400 | 4,500 | 12,900 | 4,500 | Incl. Above | 14,820 | 206,561 | 3,000 | 2,500 | 15,000 | 4,500 - 25,900 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 - 0 |
| Total Annual Cost | \$ 80,016 | \$ 289,131 | \$ 287,150 | \$ 124,098 | \$ 335,468 | \$ 162,164 (2) | \$ 182,591 (2) | \$ 136,630 | \$ 544,530 (7) | \$ 41,558 | 977,968 | \$ 100,838 | \$ 80,016 - \$ 544,530 |
| Area Required (sf) | 360 | 360 | 282 | 480 | 269 | 1320 | 965 | 360 | 8100 (7) | 112 | 123 | 400 | 269 - 1320 |
| Width (ft) | (assumed) | (assumed) | 19.6 | 20.0 | 18.2 | 40.0 | 27.0 | (assumed) | 90.0 (7) | 8.0 | 12.7 | 8.0 | 12.7 - 40 |
| Length (ft) | | | 14.4 | 24.0 | 14.8 | 33.0 | 35.75 | | 90.0 (7) | 14.0 | 9.7 | 50.0 | 14.4 - 50 |
| Weight (lbs) | | | 34,000 | 21,600 | 31,200 | 30,000 | ? | ? | ? | 15,000 | (5) 5,000 | 280,000 | 21,600 - 34,000 |
| Per Sq.Ft. (lbs) | | | 121 | 45 | 116 | 23 (3) | ? | ? | ? | 134 | 41 | 700 | 41 - 121 |
| % Solids Achieved | 10.0 | 12.25 | 13.0 | 14.0 | 20.5 | 10.5 | 22.5 (3) | 10.0 | 16-58 (4) | 20.0 | 9.5 | 12.5 | 9.5 - 20.5 |
| By | Their lab | Their lab | Pilot on site | Their lab | Their lab | Their lab | Pilot on site | Their lab | Pilot on site | Not Confirmed | Their lab | Their lab | |
| Cost/Ton Dry Solids | 11.55 | 41.72 | 41.44 | 17.91 | 48.41 | 23.40 (1) | 26.35 | 19.72 | 78.58 | 6.00 | 155.55 | 14.55 | 14.55 - 78.58 |
| Remarks | Four 1.0m | | Two 2.0m | Two 2200 | Two 2.0m ea. | Estimate | | | | No sludge test | | | |
| Daily Wt. of Sludge (tons) | 219 | 184 | 175 | 163 | 116 | 212 | 108 | 219 | 163 | 119 | 230 | 181 | 116 - 219 |
| Daily Vol. of Sludge (C.Y.) | 245 | 200 | 189 | 175 | 120 | 233 | 109 | 245 | 175 | 123 | 255 | 196 | 120 - 245 |

(1) Estimated
 (2) Includes clearances
 (3) Does not agree with our lab
 (4) Add motors
 (5) Excludes suspect results
 (6) Approximate
 (7) Excluded due to unconfirmed data.

APPENDIX C. TABULATION OF TOTAL SLUDGE DEMATERING AND DISPOSAL COSTS CONT

| | BELT FILTER PRESSES | | | | | | | | | | UNKNOWN | VACUUM FILTER | SPECIAL VACUUM FILTER | CENTRI-FUGES | FILTER PLATE PRESS | Ranges (excludes highest and lowest) |
|--|----------------------|----------------------|----------------------|------------------------|----------------------|----------------------|-------------------|---------------------|-----------------------|-------------------|-----------|---------------|-----------------------|--------------|--------------------|--------------------------------------|
| | Envirex Filter Press | Komline Filter Press | Euramca Filter Press | Passavant Filter Press | Parkson Filter Press | Infilco Filter Press | L-R-S "Black Box" | Envirex Vac. Filter | Anc-Barefoot Vac. Leg | Bird* Centri-fuge | | | | | | |
| Annual Transportation Costs | \$228,000 | \$191,000 | \$182,000 | \$170,000 | \$121,000 | \$221,000 | \$112,000 | \$228,000 | \$170,000 | \$124,000 | \$239,000 | \$188,000 | \$121,000 - \$228,000 | | | |
| Annual Disposal Costs | 134,000 | 110,000 | 103,000 | 95,000 | 66,000 | 128,000 | 60,000 | 134,000 | 96,000 | 67,000 | 135,000 | 107,000 | 66,000 - 134,000 | | | |
| Repliping and Valving | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | | | | |
| Building Costs: (If area larger than 15' wide by 24' long is required) | | | | | | | | | | | | | | | | |
| Structure @ \$60/sq.ft. | 0 | 0 | 0 | 0 | 0 | 79,200 | 57,000 | 0 | 468,000 | 0 | 0 | 24,000 | | | | |
| Annual Amort. Cost | 4,764 | 4,764 | 4,764 | 4,764 | 4,764 | 12,310 | 10,280 | 4,764 | 51,070 | 4,764 | 4,764 | 7,050 | 4,764 - 12,310 | | | |
| Annual Dewatering Cost | 80,000 | 289,000 | 287,000 | 124,000 | 335,000 | 162,000 | 183,000 | 137,000 | 544,000 | 42,000 | 978,000 | 101,000 | 101,000 - 544,000 | | | |
| Ranking | 1 | 8 | 7 | 3 | 9 | 5 | 6 | 4 | 11 | N.A. | 11 | 2 | | | | |
| Annual Repliping and Building Cost | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 12,000 | 10,000 | 5,000 | 51,000 | 5,000 | 5,000 | 7,000 | 5,000 - 12,000 | | | |
| Ranking | 1 | 1 | 1 | 1 | 1 | 10 | 9 | 1 | 11 | N.A. | 1 | 8 | | | | |
| Annual Transportation Costs | 228,000 | 191,000 | 182,000 | 170,000 | 121,000 | 221,000 | 112,000 | 228,000 | 170,000 | 124,000 | 239,000 | 188,000 | 121,000 - 228,000 | | | |
| Ranking | 9,10 | 7 | 5 | 3,4 | 2 | 8 | 1 | 9,10 | 3,4 | N.A. | 11 | 6 | | | | |
| Annual Disposal Cost | 134,000 | 110,000 | 103,000 | 95,000 | 66,000 | 128,000 | 60,000 | 134,000 | 96,000 | 60,000 | 135,000 | 107,000 | 66,000 - 134,000 | | | |
| Total/Year Composite Ranking | 4 | 9 | 8 | 2 | 7 | 6 | 1 | 5 | 10 | N.A. | 11 | 3 | | | | |
| | \$447,000 | \$595,000 | \$577,000 | \$394,000 | \$527,000 | \$523,000 | \$365,000 | \$504,000 | \$861,000 | \$365,000 | \$357,000 | \$403,000 | \$365,000 - \$861,000 | | | |

*Note: Excluded due to unconfirmed statistical data

APPENDIX C. TABULATION OF TOTAL SLUDGE DEWATERING AND DISPOSAL COSTS CONT

| | BELT FILTER PRESSES | | | | | | | | | | CENTRI-FUGES | FILTER PLATE PRESS | Ranges (excludes highest and lowest) | |
|--------------------|----------------------|----------------------|----------------------|------------------------|----------------------|----------------------|------------|---------------|-----------------------|--------------------|--------------|--------------------|--------------------------------------|--|
| | Envirex Filter Press | Komline Filter Press | Euramca Filter Press | Passavant Filter Press | Parkson Filter Press | Infilco Filter Press | UNKNOWN | VACUUM FILTER | SPECIAL VACUUM FILTER | Bird* Centr l-fuge | | | | |
| Capital Cost | | | | | | | | | | | | | | |
| Equipment | \$295,000 | \$140,000 | \$268,000 | \$247,000 | \$284,000 | \$170,000 | \$311,000 | \$554,000 | \$1619,000 | \$210,000 | \$278,000 | \$680,000 | \$170,000-\$1619,000 | |
| Structures | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | 129,000 | 108,000 | 50,000 | 518,000 | 50,000 | 50,000 | 74,000 | 50,000 - 108,000 | |
| Vehicles | 300,000 | 300,000 | 300,000 | 300,000 | 300,000 | 300,000 | 300,000 | 300,000 | 300,000 | 300,000 | 300,000 | 300,000 | | |
| Landfill | 630,000 | 630,000 | 630,000 | 630,000 | 630,000 | 630,000 | 630,000 | 630,000 | 630,000 | 630,000 | 630,000 | 630,000 | | |
| Technical Services | 383,000 | 336,000 | 374,000 | 368,000 | 379,000 | 369,000 | 405,000 | 460,000 | 920,000 | 357,000 | 377,000 | 505,000 | 368,000 - 505,000 | |
| TOTAL | \$1658,000 | \$1456,000 | \$1622,000 | \$1595,000 | \$1643,000 | \$1598,000 | \$1754,000 | \$1994,000 | \$3987,000 | \$1547,000 | \$1635,000 | \$2189,000 | \$1547,000-2189,000 | |
| Ranking | 7 | 1 | 4 | 2 | 6 | 3 | 8 | 9 | 11 | N.A. | 5 | 10 | | |
| Annual Cost | | | | | | | | | | | | | | |
| Operation | \$ 26,000 | \$270,000 | \$246,000 | \$ 96,000 | \$295,000 | \$141,000 | \$153,000 | \$ 69,000 | \$183,000 | \$ 19,000 | \$949,000 | \$ 21,000 | \$ 21,000 - 270,000 | |
| Maintenance | 26,000 | 6,000 | 25,000 | 5,000 | 13,000 | 5,000 | ---- | 15,000 | 207,000 | 3,000 | 3,000 | 15,000 | 5,000 - 26,000 | |
| Transportation | 228,000 | 191,000 | 182,000 | 170,000 | 121,000 | 221,000 | 112,000 | 228,000 | 170,000 | 124,000 | 239,000 | 188,000 | 121,000 - 228,000 | |
| (1) Replacement | 45,000 | 37,000 | 48,000 | 42,000 | 44,000 | 39,000 | 132,000 | 58,000 | 103,000 | 41,000 | 44,000 | 64,000 | 39,000 - 103,000 | |
| Landfill | 134,000 | 110,000 | 103,000 | 95,000 | 66,000 | 128,000 | 60,000 | 134,000 | 96,000 | 67,000 | 135,000 | 107,000 | 66,000 - 134,000 | |
| TOTAL | \$459,000 | \$614,000 | \$604,000 | \$408,000 | \$539,000 | \$534,000 | \$457,000 | \$504,000 | \$759,000 | \$254,000 | 1370,000 | \$395,000 | \$395,000 - 759,000 | |
| Ranking | 4 | 9 | 8 | 2 | 7 | 6 | 3 | 5 | 10 | N.A. | 11 | 1 | | |

(1) Equipment @ 20 years, vehicles @ 10 years

*Note: Excluded due to unconfirmed data