PLAN B – CONVERT SBR PLANT TO EXTENDED AERATION TYPE PLANT BY ADDING TWO RECTANGULAR CLARIFIERS, PLUS ADDITIONS IN PLAN A

Plan B permits the plant to carry a higher peak flow than that available using the SBR process, thus requiring less diverting of peak flow, and a shorter period of return flow from the detention basin, as the hydraulic capacity, based upon 24-hour aeration basin detention time, increases to 241,275 gallon per day. Assuming 100 gallons per capita per day, the population capacity increases to 2,413 persons.

In the 20-foot wide space between the UV building and the west SBR basin, Plan B proposes the construction of two rectangular steel clarifiers, 7'wide x 40'long x 12' depth, providing 560 sq. ft. of liquid surface and 50,266 gallons volume (6,720 cu.ft.). Using 1000 gpd/ sq. ft. peak surface settling rate, the allowable flow through the plant increase to 560,000 gpd. At this rate, detention time in the aeration basins is 10.34 hours.

Plan B would include all improvements to the plant, lift station, and collection system proposed in Plan A. With a 6.0-acre-foot detention basin, the plant could divert 640,000 gpd of the lift station1.21 mgd peak flow for three days before filling the basin. Compared to the SBR, with a maximum capacity of 300,000 gpd, the basin would fill in two day of peak output from the lift station.

All the attributes of the SBR process are available in the extended aeration process, plus the advantage of reducing the size of a new UV system since peak flow could be limited to 400 gpm instead of 1000 gpm required for the SBR process.

Estimate of Probable Capital and O&M Cost, Plan B

Plan A Improvements to Plant, Lift Station, & Collection System	$2,500,000
Duplex Rectangular Steel Tank Clarifiers, w/ RAS pumps, piping, electrical	400,000
Contingencies	40,000
Engineering	300,000
Total Estimated Plan B Cost	$3,240,000

For a proposed annual allocation to a Replacement and Repair Fund, add to Plan A R&R;

At Five Years Intervals,		5th Year	10th Year	15th Year	20th Year
For Plan A	$25,000	$27,602	$30,475	$33,647	$37,149
Repair Pumps & Scrapers	10,000				
Total Current Cost	$30,000	$33,122	$36,569	$40,375	$44,577
At Ten Year Intervals,					
For Plan A	$20,000				
Replace Pumps	10,000				
	$30,000		$36,569		$44,577

Annual Allocation @ 1.3%interest to generate $33,122 in 5th year = $6,429
Annual Allocation @ 1.4% " " " $67,044 in 10th year = $6,293
Annual Allocation @ 1.45% " " " $40,375 in 15th year = $2,429
Annual Allocation @ 1.5% " " " $81,726 in 20th year = $3,534
Total Annual Allocation $18,685 (or $1,558 per month)

Salvage value of the improvement will, as was related under Plan A, probably be zero after twenty years.

It is estimated that the annual operation and maintenance expense for Plan B will be the same as Plan A. Labor expense is not seen to increase, and while energy expense may increase by use of the sludge return pumps, the energy use by the UV system should reduce, as should the energy for sludge digestion.

The Net Present Worth of Plan B is computed to be;

NPW = $3,240,000 + $6,588,404 + $320,796 + 0 = $10,149,200