

POTABLE WATER CONSERVATION

An excerpt from the final report of

"PROJECT GREENLEAF"

by

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b) POTABLE WATER SAVINGS FROM THE USE OF RECLAIMED WATER

i) Methods and Results:

The 56 customers used in the previous study were also used to investigate potable water savings resulting from the installation of reclaimed water. It was first necessary to determine how many of the these customers had previously used potable water and how many had used well water for irrigation. Only 4 of the households confirmed that they had previously used wells and these accounts were not included in this study.

The monthly potable water consumption records for the 52 remaining customers were obtained from utility accounts for the period July 1983 to May 1984 and July 1986 to May 1987. Consumption data from the reclaimed water meters were also collected from July 1986 to May 1987. As none of the properties had been hooked up to reclaimed water prior to May 1984, the potable water records constituted use prior to (July 1983 to May 1984) and after (July 1986 to May 1987) these connections had been made. Totals of potable and reclaimed water use for July 1986 to May 1987 represented the new domestic/irrigation demand for these residences once the new resource had been installed.

All of these data were incorporated onto a large spreadsheet and mean monthly consumption records were computed. The overall mean consumption for 52 households using potable water for an 11 month period prior to the installation of reclaimed water was 13,440

gallons, per household, per month. After reclaimed water installation, this mean dropped significantly ($t = 7.71$, $n = 11$, $P < 0.005$) to 6778 gallons per household per month. This represented a 49.5% overall mean savings of potable water. The total mean domestic/irrigation consumption for these 52 customers, after reclaimed water installation, rose to 34,275 gallons per household per month over the 11 month study period.

The individual monthly mean consumption data for the 52 customers are included in Figure 109. From this figure it can be seen that, prior to the use of reclaimed water, potable water consumption varied considerably from month to month depending on the season. In spring and summer, potable consumption rose due to high irrigation requirements, whereas in fall and winter months irrigation levels were reduced and total consumption was lower. After reclaimed water installation, monthly potable water demand became almost constant, as only non variable domestic use was occurring. Figure 109 also shows that much higher irrigation levels were utilized once the new resource became available. Total demand was highly variable and more than twice as much as it had been when potable water was the only available irrigation source.

Although the overall mean savings of potable water over the 11 month period was 49.5%, the monthly mean percentage savings varied considerably depending on the season. Figure 110 shows that consumption levels (and potable water bills) would have been reduced by as

much as 67.7% in the mid summer months and 40-50% in the winter months if reclaimed water had been available in the 1983-84 season.

The average number of persons per household in St. Petersburg is calculated to be 2.24. In 1983/84 the mean consumption level for potable water for irrigation and domestic use in 52 households was 13440 gallons per household per month as already described. This is equivalent to an average of 197 gallons of potable water per person per day. In 1986/7, after reclaimed water had been connected, potable water use fell to 100 gallons per person per day. Consumption of reclaimed water averaged 404 gallons per person over the 1986/87 period making the total consumption of reclaimed and potable water 504 gallons per person for this period.

As an economic proposition, the cost of reclaimed water installation and the \$7.00 monthly service charge are rapidly recovered by the considerable savings in monthly potable water bills. Another advantage is that the use of reclaimed water is not prohibited by law when restrictions are placed on the use of potable water by district and local authorities during chronic drought periods.

POTABLE WATER CONSUMPTION

PRIOR & POST RECLAIMED WATER

