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REPORT PUBLISHED

Technical Report #4, "Sequential Use of Reclaimed Wastewater Destined for Aquifer Recharge," was recently published by the Water Resources Research Center. The report summarizes a project partly funded by a grant from the U.S. Department of the Interior, Office of Water Research and Technology. The project investigated reclaimed wastewater as an additional source of water on St. Croix.

Effluent from the 0.5 million gallon per day advanced wastewater treatment plant at Estate Bethlehem Middle Works was used to recharge aquifers at Negro Bay and Golden Grove through use of spreading basins. The quality of water as well as static levels of wells in the recharge area were monitored to determine the effect of recharge operations. The report concludes that there was a significant increase in the quantity of water in the aquifers as well as an upgrading in the quality of the effluent. In addition, an economic analysis showed the cost of recharge/recovery operations to be significantly less than the cost of desalination of sea water.

Copies of the report may be obtained by writing or calling the Water Center.

GAO SUPPORTS SEPTIC SYSTEMS

Septic systems, the most widely used wastewater disposal system in private homes in the V.I., have often been questioned as a safe, reliable, non-polluting method of wastewater disposal. Recently though, General Accounting Office (GAO) investigators have asserted that the EPA should make a greater effort to promote septic systems. The GAO in their report said that when septic systems are properly designed and operated, they should not fail and should be "as permanent as central treatment facilities." The GAO report recommends that the EPA set minimum standards for public management of septic systems and "emphasize to public entities that grant assistance is available for major rehabilitation and upgrading of septic systems."

This report should provide beneficial information to septic system users in the V.I. as to the effectiveness of their systems. Copies of the GAO report (CED-78-168) are available from GAO Distribution Section, Room, 1518, 441 G. Street N.W., Washington, D.C. 20548.

AN INTERESTING REGULATION

The Environmental Protection Agency has issued regulations stipulating that any residential water use greater than 70 gallons per day must be

justified with detailed backup statistics, as well as factual demonstration that all reasonable water conservation measures (low volume plumbing fixtures, price structure analysis, etc.) have been taken into account by a community in order to be eligible for federal grant assistance.

A NOTE ON SALT WATER FLUSH

A study by Engineering Science, Inc. titled "Water Resources Study for the Virgin Islands of the United States," completed in October 1968 states:

"Therefore, for domestic water costs of greater than \$1.25/1000 gallons, it is more economical to the consumer to use sea water in his sanitary facilities." (Page VII-8).

Based on the V.I. Department of Commerce Consumer Price Index, it takes about \$2.85 to buy today what \$1.25 would buy in 1968. WAPA is now charging \$7.70/1000 gallons for water. Therefore, it would seem that serious consideration should be given to up-grading and expanding the salt water system for sanitary and firefighting purposes.

WATER QUALITY MANAGEMENT PLANNING NOT EFFECTIVE?

A report completed by the Comptroller General in accordance with the request of the Chairman and Ranking Minority Member, Subcommittee on Investigations and Review, House Committee on Public Works and Transportation, has revealed that water quality management planning is not comprehensive and may not be effective for many years.

The EPA water quality management planning program, commonly called 208 planning, is a section

of Public Law 92-500 which was enacted with an overall objective to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Although the program has achieved some success, the Comptroller General's report contends that water quality management planning will probably not be effective until

- * cause and effect water quality data is obtained,
- * planning efforts become more comprehensive, and
- * public participation strategies are broadened.

Hindrances found to areawide planning that need to be corrected are listed below.

- * Lack of continued local funding commitments.
- * Plans may not be implemented because funds are lacking.
- * Institutional problems may hinder 208 planning implementation.
- * A need for effective public participation strategies.

The Comptroller General's report concludes that unless good cause and effect data is obtained to clearly support implementation actions needed, implementation of plans developed by planning agencies risks legal action and rejection. It further states that the EPA has proposed, and the General Accounting Office agrees, that potential solutions to water quality problems should be tested in selected river basins before applied on a nation wide basis.

Requests for copies of the Comptroller General's report (CED-78-167) should be sent to: U.S. General Accounting Office, Distribution Section, Room 1518, 441 G. Street N.W., Washington, D.C. 20548

MANAGEMENT STUDY FUNDED

The Office of Water Research and Technology, U.S. Department of the Interior, has funded a 13-month study titled "Water Management Under Conditions of Extreme Scarcity: The U.S. Virgin

Islands," to be carried out by the engineering firm of Coffin and Richardson, Boston, Mass., in cooperation with the Water Center.

The research will address the specific problem of extreme scarcity of water in the Virgin Islands as well as the more general problem of how best to manage limited water resources in small island communities. The complexity of the problem is due to physical and environmental conditions which limit the availability of on-island supply, the wide variety of water sources (desalting, ground-water, catchments, barging), uncertain demand, sharply rising costs and the need to preserve delicate island environments.

A major component of the study will be a survey to identify how various sectors of the community value and use fresh water for a variety of purposes. Further refinement of demand figures for the Virgin Island is anticipated but, more significantly, the survey will attempt to identify attitudes toward water conservation and opportunities for implementing a conservation program.

The study will be carried out in close coordination with current efforts of other local and federal agencies involved with water.

Any persons wishing to contribute to the survey aspect of the study as respondents are urged to contact the Water Resources Research Center by mail (College of the V.I., St. Thomas) or by phone, 774-1252 ext. 250 or 251.

WAA TA' STATISTICS

Sometimes to really appreciate the amount of rainfall during a period, it is helpful to

convert inches to gallons or some other readily conceived unit. We will do this for the recent tropical storm Frederick. Reports from scattered areas around the V.I. indicated that in some places approximately 14 inches of rain fell between August 31 and September 7. Our calculations suggest that this amounted to at least 32,200 million gallons of rainfall in the V.I. If we assume 7.4 mgd to be the water that Frederick brought and protected it from evaporation, seepage, runoff, etc., then there would have been enough water to supply the needs of the islands for about 435 days. To store this water in one place would have required a structure having a base of one square mile to be as tall as a 15-story building.

Rainfall in Inches

St. Croix:	Aug.	Sept.
A.H. Airport	1.52	30.05
East End	1.47	---
Little Fountain	2.57	47.78
St. Thomas:		
Red Hook	7.44	17.57
Estate Hope	9.33	14.17
St. John:		
Cruz Bay	--	16.22
Catherineberg	7.58	17.45

BULLOCK JOINS STAFF

Donald C. Bullock, a mechanical engineer, has joined the staff of the Water Center as a short-term consultant. Mr. Bullock was previously associated with testing of seawater reverse osmosis equipment at the West Indies Laboratory on St. Croix, and design and introduction of the first small standardized seawater RO plants for a California based firm. Having lived in the Virgin Islands for much of the last several years, he is familiar with many of the water problems unique to these islands. His assignments for the WRRC will include an analysis of water usage patterns.