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THE WATER SOURCE

A QUARTERLY PUBLICATION OF THE EDWARDS UNDERGROUND WATER DISTRICT

February 1991

District Hosts Plumbing Efficiency Seminar

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On October 30, nearly 100 South Texas officials converged in San Antonio to hear a panel of nationally regarded experts describe state-of-the-art plumbing technologies that can substantially reduce indoor water consumption.

The "End-Use Water Efficiency Seminar," a half-day forum hosted by the Edwards Underground Water District, focused on the performance of Ultra Low-Flow (ULF) toilet, showerhead, and faucet fixtures and the potential benefits from legislation mandating their installation.

Targeting policymakers, seminar attendees included area mayors, city council members, managers, planners, and public works directors, as well as representatives from chambers of commerce and the building and plumbing industries.

State Senator Cyndi Taylor Krier, co-chair of the Special Committee on the Edwards Aquifer, gave the keynote address. In her opening remarks she said, "If technological advances allow these appliances to perform their tasks with a smaller volume of water, then it becomes practical for us to encourage such efficiency."

From Georgia to Washington, and from Boston to Austin, that same kind of encouragement has prompted plumbing code revisions and ordinances requiring the installation of ULF plumbing fixtures, usually in new construction.

Currently eight states and more than two dozen cities, counties, and regional entities have adopted ULF legislation. Also, the proposed "National Plumbing Products Efficiency Act", introduced in Congress each of the last two terms, would establish uniform national standards for plumbing fixtures, require new appliances to display water use labels, and mandate ULF fixture installation in all new construction.

"Now is the time to act," urged the seminar's first speaker, Amy Vickers. A water resources consultant and the principal author of both the national bill and similar legislation for Massachusetts, Vickers is familiar with technical and political issues surrounding water efficiency improvements. "Public opinion increasingly supports environmental legislation, particularly in the water area," she said.

"The public," she said, "wants quality, not quantity of water use in their plumbing fixtures," noting that most people are oblivious to the volume of water their appliances consume.

The potential benefits of water efficiency are evident when ULFs are compared to standard plumbing fixtures. Regionally, indoor water usage hovers at 100 gallons per person per day and some two-thirds of that usage occurs in the bathroom. Most toilets sold since 1980 consume 3.5 gallons per flush (gpf), but many older 5 to 7 gallon models are still in use. Design improvements within the last decade, however, spawned highly efficient water closets which use only 1.6 gallons per flush, some even less. Likewise, conventional showerheads and faucets typically have flow rates of 5-8 gallons per minute (gpm) and 5 gpm, respectively, but competitively priced ULF fixtures are available which use only 2.5 gpm.

By installing a ULF toilet rather than one consuming 3.5 gpf, the average three-person household can save more than 8,000 gallons of water annually. If that same household had a 5 gallon toilet tank, retrofitting with a 1.6 gpf model would save approximately 20,000 gallons per year. Municipal water consumers using ULF fixtures also can save as much as \$50 annually on their water and sewer bills, and another \$20 from using less hot water in the shower.

In addition to consumers, cities can also benefit from ULF installations in a number of ways. Reduction in the volume of flows through water and sewage treatment facilities can improve facility efficiency since capacity limits are not stretched, allowing peak demands to be more easily met.

Seminar (continued)

Reducing water demand lessens the need for oversized distribution piping to new developments. This, in turn, helps avert or delay expensive capital facility expansions, reduces additions to bonded indebtedness for taxing jurisdictions, and eases the burden placed upon taxpayers. As suppliers realize reduced energy costs for pumping and distributing water, these cost savings can be passed onto utility consumers.

Demand-side management energy programs can serve as a model for analogous improvements in managing water demands. Sen. Krier told attendees, "The political, economic, and environmental crises of the 1970's prompted efficiency improvements, some legislatively mandated, in a range of energy-intensive applications. The payoffs have been substantial. Since 1979, energy efficiency has produced seven times as much energy as from all net increases in energy supply. Taking similar steps in improving the efficiency of water-intensive applications can likewise have a profound and positive impact."

Environmental benefits to the Edwards Aquifer region will be one such impact as reduced municipal pumpage prolongs natural springflows and helps preserve the high quality of aquifer water.

The economic benefits of ULF technologies will ripple throughout the state as the market for water-efficient plumbing fixtures expands. Of the 2.5 million ULF toilets that were projected to be sold nationally in 1990, one-third will be manufactured in Texas.

There are now 20 manufacturers of ULF toilets nationally, and while they represent just under 25% of all toilet sales nationally, the production of 1.6 gallon toilets has boomed within the last five years. ULF toilet production tripled from 1987 to 1988, according to a Plumbing Manufacturers Institute survey. Production of the 1.6 gallon models increased tenfold from 1988 to 1989.

Although these efficient appliances have proven their mettle in a host of settings (single and multi-family

residential, hotels and schools, new and existing development), there remain those who are wary of changes to established plumbing codes. But a survey of seminar attendees revealed that while one-third of the respondents had a less than positive opinion about ULF fixtures prior to the seminar, 100% of those surveyed left the seminar with a positive attitude toward the technologies discussed.

Most of this wariness is due to unfounded rumors of poor ULF performance. Numerous independent scientific tests and case studies in cities across the country attest that the performance of ULF fixtures is at least on par with that of fixtures using more than twice the volume of water.

Regarding ULF toilets, for example, Wendy Corpening, a water efficiency expert and seminar speaker, said, "In many cases these new toilets work better because they are designed with a higher velocity flush and are not dependent on a large amount of water in the bowl to achieve the proper evacuation of waste."

One concern expressed by attendees involved the ability of ULF toilets to adequately transport waste. Corpening dispelled such fears, saying there exists no credible evidence that ULF toilets have problems with drainline carry. "In fact," she said, "in a study done in Phoenix, Arizona the homeowners reported that the low consumption toilets actually clogged less than the 3.5 gallon types."

"There are more than 8 million low consumption toilets installed throughout the world in a variety of situations and there is no evidence that they have caused any more problems than conventional fixture types," said Corpening.

This sentiment was echoed by another speaker, Larry Farwell, water conservation coordinator for the Goleta Water District in California. Severe drought, limitations to surface water additions, and diminishing groundwater supplies prompted Goleta to be the first community, in 1983, to adopt an ordinance requiring ULF fixtures in new construction. The Goleta Water

District later established aggressive water conservation programs fostering the retrofit of older fixtures through distribution of free showerheads and rebates for ULF toilet installations.

"We are unaware of any problems with either the lateral or main sewer lines during the six years of ULF use in the Goleta area," said Farwell. This observation came after the retrofit of nearly 30% of all toilets in the Goleta Water District's service area, in addition to those commodes installed in new development.

While ULF fixtures may cost slightly more than their highly consumptive peers, their cost has dropped as code revisions and ordinances requiring more water-efficient appliances has expanded the market for ULF products. Corpening stated that retail prices for ULF toilets are currently as low as \$80 per unit. A 1990 *Consumer Reports* study of ULF showerheads showed that "price was no guide to the quality of the showerheads. Six of the highest-rated fixed-position heads cost \$10 or less."

Support for legislation mandating efficiency improvements in water consumptive appliances is mounting. This concept has been endorsed by groups as diverse as the American Water Works Association and the Consumer Federation of America, the National Rural Water Association and the California Municipal Utilities Association, the National Wildlife Federation and the Texas Water Development Board.

The EUWD presented the "End-Use Water Efficiency Seminar" to both inform and motivate regional policy makers. The manifold benefits of water efficient fixtures are available for both governments and the governed, and the District hopes to capitalize on the energy created by bringing together decision makers and an idea whose time has come. ■

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EUWD Building Expansion Project Underway

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Construction is presently underway on the Edwards Underground Water District's office expansion project--a project designed to add approximately 8,000 square feet of office, meeting, and storage space to the current six-year old building, and to renovate the existing 4,200 square foot office facility.

In 1984, the EUWD permanently relocated its offices from rented space in the Tower Life Building to the current location at 1615 N. St. Mary's Street, San Antonio, Texas. At that time, the District employed seven staff members and was primarily involved in water quality monitoring, recharge enhancement, and limited water conservation programs.

In 1991, the situation is markedly different. Ongoing technical programs include an abandoned well closing program, data collection activities, water quality investigations, leak detection surveys, recharge enhancement projects and implementation of the state's first region-wide Drought Management Plan. Additionally, the District conducts public information and education programs throughout the region aimed at fostering a water conservation ethic.

As the scope and degree of the District's programs have increased, so too has its personnel, and consequently, its office needs. The District currently employs a professional staff of twenty-seven permanent full-time employees and three temporary part-time personnel.

The actual construction of the project will be conducted in two phases. Phase I will consist of construction of the 8,000 square foot addition to the building, while Phase II will consist of the renovation portion of the project. District staff anticipate construction activities for both phases to be completed in September 1991.

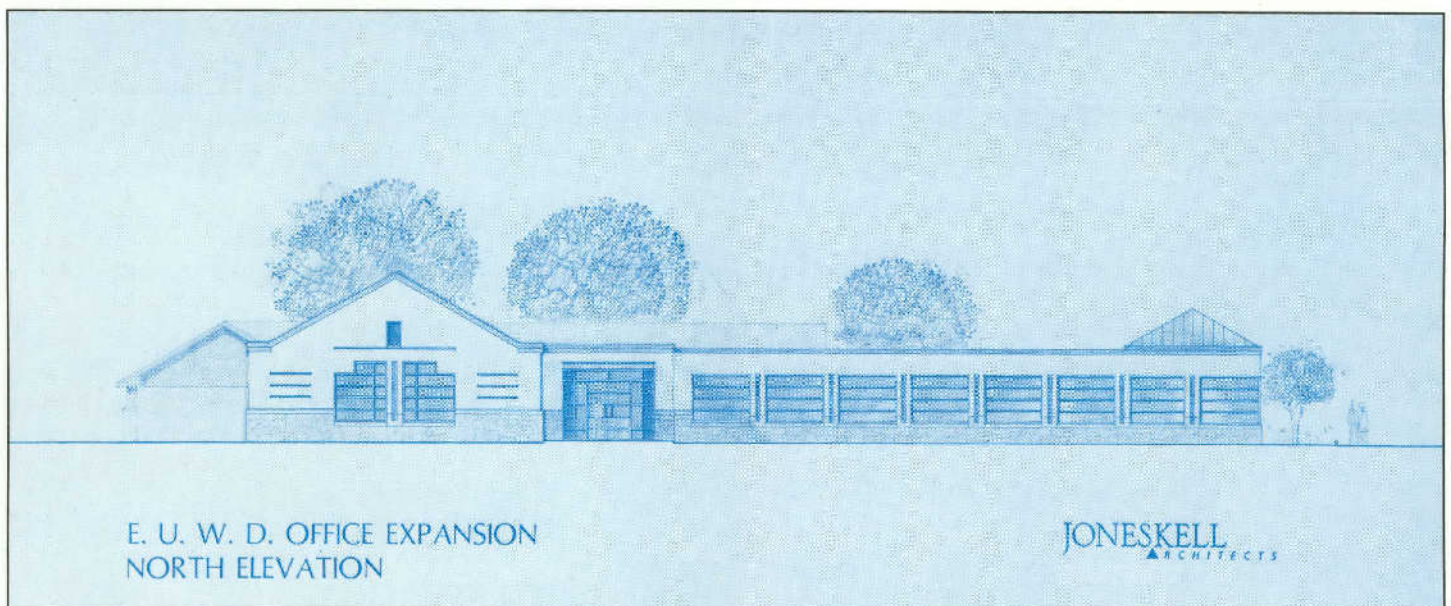
Plans for the building expansion project began to take shape in January 1990 when the District contracted with

San Antonio based Jones and Kell Architects, Inc. for design of the project. With the space planning and design phase completed, the District is now under contract with Stoddard Construction Company for general construction contractor services.

The Board of Directors' Building Committee has worked with District staff throughout the project. Members of the Building Committee are: Mr. Jack Ohlrich (Comal County), Committee Chair; Mrs. Lynda Billa Burke (Bexar County); Mr. Robert C. Hasslocher (Bexar County); Ms. Jerri W. Martin (Hays County); and Mr. Jesse Zuniga (Bexar County).

Once completed, the District's expanded office building will provide staff with adequate space to meet present and future office needs, additional file and storage space, an employee break room, an expanded reference materials library, a larger Board/multi-purpose room, and increased parking.

Also included in the plans is the use of ultra-low flow water fixtures and xeriscape planting materials throughout the project. The total projected cost of the project is approximately \$726,000.00. ■



Phase I and Phase II of the expansion project are expected to be completed in September 1991.

News Briefs...

The District recently participated in a study to determine the potential for increasing artificial recharge in the Nueces River Basin. According to the study, conducted by HDR Engineering, Inc., recharge to the Edwards Aquifer in the Nueces River Basin could be increased by an average of 62,600 acre feet of water per year, without affecting downstream water rights. This can be accomplished by constructing certain recharge structures. Phase II to determine the costs of the recharge structures is expected to be underway by spring '91.

The District is presently conducting a study which may provide information regarding the effects that emissions resulting from burning hazardous wastes may have on surrounding soils--and potentially the Edwards Aquifer. The study is prompted by concerns over the proposed, New Braunfels-based, LaFarge-Systech plant. District environmental staff coordinated with the Texas Air Control Board to collect and

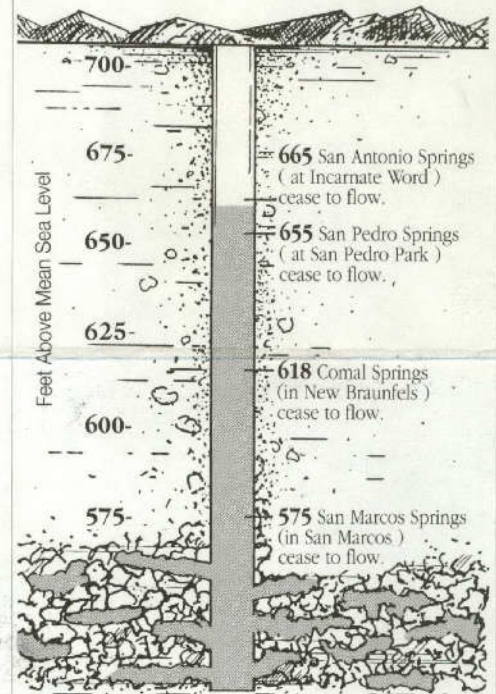
analyze soil samples near Midlothian, Texas, a city south of Dallas, where similar hazardous waste burning cement kilns have been in operation for a number of years. Results of the soil samples are expected within approximately one month.

In 1989, the District launched an intensive abandoned well closing program. Since that time, field staff have identified approximately 150 abandoned or flowing wells and effected the closing of 80 of these wells. These efforts can result in a tremendous water savings and an immeasurable level of water quality protection. If you know of any abandoned or flowing well, call the District at 222-2204 or 1(800) 292-1047.

As a follow-up to the October seminar, a Plumbing Efficiency Task Force is presently being formed. Comprised largely of representatives of municipalities and the plumbing industry, the Task Force will create model ordinances that would effect water efficiency improvements in plumbing fixture standards. ■

The Water Level

This reading reflects the daily high artesian water elevation at the Bexar County Edwards Aquifer Index Well.



Current Status: On February 6, 1991 the water elevation was recorded at 668.7. Average for February is 668.0.

THE WATER SOURCE

The Water Source is published quarterly by the Public Information Office of the Edwards Underground Water District, 1615 N. St. Mary's, San Antonio, Texas, 78212. 512/222-2204 or 800/292-1047

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