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A QUARTERLY PUBLICATION OF THE EDWARDS UNDERGROUND WATER DISTRICT

November 1992

Data is Key to Future Regional Water Planning

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This spring and summer, a unique and enlightening chapter on the management of the Edwards Aquifer and the region's water supplies was written. At a time when the region's water interests were preoccupied with litigation and proposed regulation related to the Edwards Aquifer, technical representatives of those interests met in a non-partisan effort aimed at improving the technical data base for future regional water planning and policy debates.

The landmark effort was unique in that it represented the first objective evaluation of available data on water uses and supplies in the region separate from a planning forum. It was enlightening for the questions it raised about the accuracy and utility of data used in previous planning exercises.

The Edwards Underground Water District organized and funded the effort, which convened as the South Central Texas Technical Data Review Panel, or Panel for short. The entire region of the Guadalupe, San Antonio and Nueces River Basins will be affected by the resolution of the dispute over the Edwards Aquifer, so representatives from each of

these areas were invited to participate. Included were state and federal agencies, river authorities, cities, water districts, irrigators, and environmental interests. Thirty-five participants attended seven day-long meetings. John Folk-Williams, a professional facilitator who mediated an attempt to negotiate a regional management plan for the Edwards Aquifer in 1990, was engaged to guide the process, and a technical consultant was retained to research and compile data.

A final report will be available in November containing all of the technical data reviewed by the Panel, as well as information on how it was accumulated and estimated. This will give the reader a better understanding of the data's accuracy. More importantly, the opinions of the Panel members are recorded for the benefit of future planning efforts which would use the report as a resource. The opinions provide an acknowledgement of problems with the data, cautions about its misuse, and gives individual and collective judgements on its reliability. How the data may or may not be used is a valuable output of the effort. Five technical areas were addressed.

Water Demands

Significant discrepancies in estimates of historical use were noted in the review of two sets of data on the Edwards Aquifer available from the Texas Water Development Board and the United States Geological Survey. The difference led to questions about the estimates' accuracy, with the least amount of confidence in the irrigation use estimations. The data sets are included and compared in the report.

The Panel also addressed water needs for instream flows, springflows, and bays and estuaries, but noted that little technical information existed to quantify those needs. The Texas Water Development Board is the only source for projections of future water use. Their projections extend to the year 2040 and are included in the report.

Sources of Supply

Technical reports addressing reservoirs, recharge, desalination, reuse, and aquifer storage and recovery projects were researched for information on amounts and cost of water available from sources other than the Edwards Aquifer. Both existing and proposed projects were included. An attempt was made to compare all of the identified supply sources on a consistent unit cost basis. Adjustments were made for estimates calculated in different years.

Earlier estimates failed to take into consideration environmental costs, different levels of effort in estimating

(continued)

Readers Reveal Likes & Dislikes

In the August edition of *The Water Source*, a reader survey was included so that you would have an opportunity to offer feedback on the quality and content of the publication. *The Water Source* newsletter was created in 1989 to provide a forum for discussing critical water issues, as well as the various programs of the Edwards Underground Water District. It has evolved and expanded over the last three years. Guest columnists have appeared in several issues, and more than just District programs are covered.

Your comments and suggestions were appreciated and will enable the editorial staff to continue to upgrade the publication and reflect your interests. For example, the survey revealed you wanted to see more water related issues covered. Gregory Rothe's article summarizing the South Central Texas Technical Data Review Panel's efforts addresses a major water issue—the lack of a consistent data base on the Edwards Aquifer for use in planning. From the editorial staff of *The Water Source*, thanks to everyone who took the time to complete the survey. Close to 10% of our readers responded, revealing the following results:

Overall, the content of the articles is:

36%	above average
30%	excellent
26%	good
6%	average

I find the articles (allowed more than one response):

82%	interesting
38%	fine the way they are
16%	have too little information
12%	too general
3%	too technical
2%	boring

Overall usefulness of published information:

54%	very good
20%	excellent
20%	average
5%	fair

Do you feel you have learned more about the Edwards Aquifer after reading *The Water Source*?

93%	yes
5%	no

Do you feel you have learned more about what the EUWD does after reading *The Water Source*?

83%	yes
12%	no

80% responded that they wanted to see more water related issues covered.

32% wanted more guest columnists.

Selected comments and suggestions:

"More about water economics: cost effective use for maximum value to the region"

"A historical approach and explanation of the jurisdictional boundaries and functional distinctions of the EUWD, San Antonio River Authority, etc."

"Water history of Texas, and water rights disputes in other states"

"Data updates: regulatory activity and actions taken, effectiveness of water conservation efforts"

"Kudos for conservation—an honor roll for communities and other users"

"More technical information on the aquifer"

"Highlights on workers, scientists and their jobs"

"Information on different formations in the Edwards Aquifer"

"What is being done to combat contamination hazards"

"Relationship of bays and estuaries." ■



John Folk-Williams moderated seven sessions of the South Central Texas Technical Data Review Panel. (See story on cover)

Teachers Use Water Wizards to Help Students Understand Edwards Aquifer

The Edwards Underground Water District (EUWD) has developed Water Wizards, the first in a series of curriculum supplements for schools in the Edwards Aquifer region. The curriculum has been distributed to all public school districts and private schools in Bexar, Comal, Hays, Medina and Uvalde counties, and is part of the District's comprehensive education program.

Water Wizards is an interdisciplinary collection of activities created to provide 4th-6th grade students with a greater understanding of water and the Edwards Aquifer. The emphasis of the lessons is hands-on, minds-on activities, with maximum student involvement and minimum teacher direction.

Residents of the Edwards Aquifer region are becoming increasingly aware that management of the resource is necessary and important. How people use water from the Edwards Aquifer is directly related to how well they understand the nature and characteristics of the resource itself.

Cinde Thomas-Jimenez, Education Coordinator for the District, wrote and compiled the curriculum. "The Edwards Aquifer is a subject which only recently has become an issue, so many teachers don't have a background knowledge of the aquifer's complexities and dynamics." Jimenez continued, "We want to provide high quality information and materials to teachers so they can lead activities for their students which will explain how the aquifer works and its importance."

Providing students with information about the physical and chemical properties of water, the hydrologic process, the geologic and hydrologic dynamics of the Edwards Aquifer, and the social implications of its use will help them make wise decisions regarding water management.

The Water Wizards curriculum supplement compliments the EUWD's goal of fostering a water conservation ethic among present and future water users, which is the cornerstone of the District's overall conservation effort. For more information or a list of education materials, contact the Edwards Underground Water District Education Department at (210) 222-2204 or (800) 292-1047. ■

Data *(continued)*

costs and yields, and varying methods for calculating yields. These all detracted from an objective comparison of unit costs. Of special note is the difference in reservoir project yield that can occur, depending upon the operating conditions imposed for a particular project evaluation.

Reductions in Use

The Texas Water Development Board has the only comprehensive regionwide projection of reductions in future use that can be expected from conservation measures. The projections cover a planning period up to the year 2040. These reductions range up to approximately 15% of total use for most cities, and do not consider cutbacks in use from more stringent measures that might be instituted during drought conditions or shortages due to water demand. Other conservation projections made by the Texas Water Commission and the 1988 Regional Water Management Plan for the Edwards Aquifer were reviewed. Comparisons were made of expected savings from the various projections.

Natural Recharge

One of the most important elements in determining how the aquifer will be used is natural recharge. Recharge is the primary source of water for the region. Methodologies for estimates, and the resulting figures, were researched and compared in this section of the report. Significant differences exist between data sets. More important are the uncertainties within each data set reported by technical staff responsible for preparing recharge estimates—deviations as high as 25% for the average annual recharge, and as high as 50% for any particular annual estimate.

Water Quality

This section of the report addresses water quality only in terms of potential restrictions in use, with emphasis on the Edwards Aquifer. Specifically, information is provided on known water quality problems and the freshwater/saline-water interface. Additional material provided to the Panel described major sources of water quality data, but did not include the actual data base.

Future Studies

The final section of the report is a list of technical areas Panel members recommended for further study to complete the technical record for future planning efforts by the region's policy makers. Better techniques on natural recharge estimates and springflow augmentation are examples of areas which made the list.

It is important to note that the South Central Texas Technical Data Review Panel effort did not have an "action agenda" for settling the Edwards Aquifer dispute. Rather, it was a cooperative effort of technical representatives of the region's water interests who had a genuine concern in constructing a resource document of technical information to be used as a foundation for future negotiation, legislation, or regulation relative to the Edwards Aquifer and the entire region. ■

News Briefs...

□ This fall, water conservation moves indoors. The average person uses 163 gallons of water a day, and 65% of that amount is used indoors. The Edwards Underground Water District is conducting a promotion which targets the homeowner. The goal is to give away 2000 low flow (water efficient) showerheads through selected radio stations in the Edwards Aquifer region. Participating stations include WOAI-AM and KSMG-FM (Magic 105) in Bexar County, KGNB/KNBT in Comal County, and KSPL-AM in Hays County. The stations are running promotional spots which discuss the benefits of water conserving fixtures, as well as giving away cards which outline other ways to "Be WaterTight" indoors.

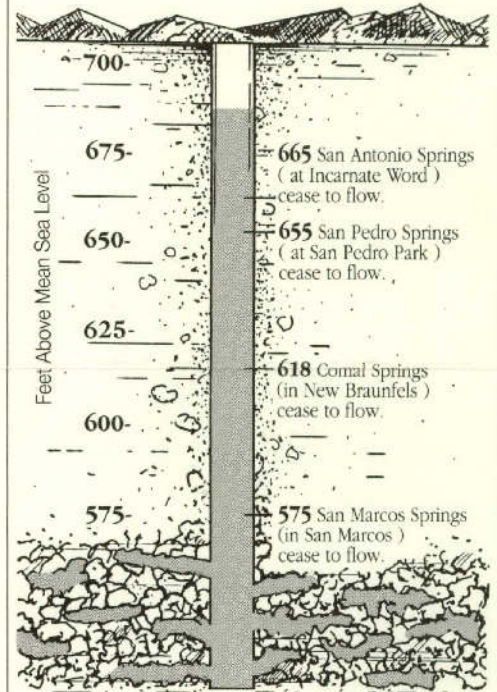
□ As part of its Edwards Aquifer Preservation Program, the Edwards Underground Water District has recently completed the construction of a protective gate over a cave in northeast Bexar County. Protecting the cave was a high priority for the District due to its

location in a recharging streambed adjacent to a newly developed subdivision. The gate will protect the recharge feature while allowing for unimpeded recharge to the aquifer. Negotiations are underway to obtain a protective easement on the property surrounding the cave, thereby establishing a buffer which will help protect water quality of runoff from nearby development.

□ "Investigation of the Fresh/Saline Water Interface in the Edwards Aquifer in New Braunfels and San Marcos, Texas" has been published. Two well transects were drilled to collect hydrogeologic data regarding the interface between the fresh and saline zones of the Edwards Aquifer, as well as monitor the movement of the interface over a long period of time. The comprehensive report presents the data and resulting analysis from each site and lays a technical foundation for the long-term monitoring of the fresh/saline interface, as well as for other hydrogeologic studies regarding the Edwards Aquifer. ■

The Water Level

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



Current Status: On October 22, 1992 the water elevation was recorded at 686.6 Average for October is 661.5

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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