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EDWARDS AQUIFER AUTHORITY

GENERAL MANAGER'S REPORT

June 2004

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The General Manager's Report is published monthly.

Our Mission:

The Edwards Aquifer Authority is committed to manage, enhance and protect the Edwards Aquifer system.

The Edwards Aquifer Authority (the Authority) in conjunction with San Antonio Water System and the San Antonio River Authority is proud to sponsor the 1st Annual Water Conference for Educators titled Water: A Living Lesson. The conference hosted by Our Lady of the Lake University will take place July 7-9, 2004, and will provide a unique opportunity for teachers to learn innovative, interactive, and tested methods of teaching water subjects. Workshops and field trips will provide teachers physical resources and strategies for developing comprehensive water lessons to take back into the classroom. The conference will explore practical, up-to-date examples of successful educational programs and materials through fifty interactive sessions. The conference's target audience includes both formal and non-formal educators in settings serving grades kindergarten through twelve. In addition, State Board of Education Credit (SBEC) as well as Gifted and Talented credit will be available. Educators will have the opportunity to meet people with similar objectives, challenges, and concerns regarding the water issues facing our region.

Conference participants will have the opportunity to join me and John Hoyt, Program Manager - Aquifer Science, in a discussion of the management of the Edwards Aquifer as well as aquifer geology, hydrogeology, and water quality. Mark Hamilton, Senior Hydrogeologist, will be leading a discussion on the intricacies of the Edwards Aquifer from a hydrogeological perspective. This discussion will include aquifer formation/development, water balance, and ongoing studies related to the Edwards Aquifer. Authority staff will co-present an internet course to guide teachers through water related sites and curriculum. Teachers will receive copies of Authority educational materials that they can then put to use in their classrooms.

In addition, teachers will have a unique opportunity to learn about karst terrain through a workshop entitled "Project Underground." Carol Zokaites, the National Coordinator of Project Underground and the Karst Education Coordinator for the

(continued on next page)

Message from General Manager (continued)

Gregory M. Ellis

Virginia Department of Conservation and Recreation, will lead teachers through this six-hour course where educators will learn what karst is, how it forms, why it is different, and why it needs special protection. Participants will experience hands on activities they can use to teach about caves and karst in the classroom. They will also receive the Project Underground curriculum guide as well as supporting resource materials, including some great books, posters, fact sheets and handouts.

The Authority is also working with the Aquarena Center in San Marcos and Bat Conservation International to provide two unique field trips free of charge to conference participants. The "Explore the Edwards Aquifer" field trip will provide teachers a day of learning at Aquarena Center in San Marcos. Topics of study will include geology, hydrogeology, water chemistry, biology, archeology, and much more. Participants will discuss the geology and hydrogeology of the Edwards Aquifer, obtain a close up view of Edwards Aquifer springs from a glass bottom boat, learn about aquifer flowpath studies using tracer testing techniques, and observe well logging tools and a well video camera in operation. Hands-on learning stations will be offered including a karst flow model and a water chemistry station where participants will collect and analyze water samples.

An exciting evening field trip to Bracken Bat Cave will give participants the chance to discuss and witness the emergence of the Mexican free-tailed bat from the cave, which I believe is one of the most spectacular sights in nature. Each summer night, more than 20 million bats spread across thousands of square miles, flying over towns and farmland consuming more than 200 tons of night-flying insects.

We are very excited to be a partner in this first annual summer water conference for educators and encourage all formal and non-formal teachers in our region to join us. For more information contact Margaret Garcia, Program Manager - Public Affairs, at 210-222-2204.

Initial Regular Permits

by Steven D. Walthour, Program Development

In May, Authority directors granted an omnibus final order for one application for an Initial Regular Permits representing 740,000 acre-feet of Edwards's groundwater withdrawal rights per annum. In addition, Authority directors granted an agreed final order for one application for Initial Regular Permits representing 2,250,000 acre-feet of Edwards's groundwater withdrawal rights per annum.

In addition, Authority directors considered staff recommendations to deny two applications for water rights. The Authority directors postponed decision on these orders until such time issues surrounding these permits can be resolved.

Authority directors also referred one permit application to the State Office of Administrative Hearings (SOAH) and postponed referring two permit applications because one applicant withdrew their request for a Contested Case Hearing and allow time for another permit applicant to resolve enforcement issues. The permit application referred by the Authority directors will be tried before a SOAH Administrative Law Judge, who will recommend a final action.

To date the Authority has issued final decisions on 935 Initial Regular Permit applications representing approximately 85% of all applications filed with the Authority. The Authority has issued 742 permits and denied 193 permit applications. The Authority has issued a total of 520,363 acre-feet of Edwards Aquifer permitted groundwater withdrawal rights. Approximately 159 permit applications remain, representing approximately 49,384 acre-feet of proposed Edwards's groundwater withdrawal rights.

May 2004 Board Meeting

by Margaret Garcia, Program Manager – Public Affairs

Authority Directors Authorize Junior/Senior Rules for Public Comment



At their regular monthly meeting held Tuesday, May 11, 2004, the Edwards Aquifer Authority Board of Directors authorized Authority staff to schedule public comment for the initial regular permit rules. These final rules, adopted in December 2003, will help the Authority avoid having to purchase initial regular permits to meet a 450,000 acre-foot permit cap. These final rules will divide initial regular permits into two portions. One portion of the permit, the "Junior Groundwater Withdrawal Right," can be used by permittees only when the Edwards Aquifer is above 665' above mean sea level at the J-17 index well (San Antonio pool) and 865' above mean sea level at the J-27 index well (Uvalde pool). The second portion, the "Senior Groundwater Withdrawal Right," can be used at any time, but may be subject to water use reductions when the Edwards Aquifer drops below 650' above mean sea level at the J-17 well and 845' above mean sea level at the J-27 well. Public Hearings for these rules as well as rules regarding fees, and Comprehensive Water Management Plan Implementation will be scheduled for June 2004.

In other action, Authority directors voted to approve a conservation easement agreement between the Authority and the Nature Conservancy of Texas for Ezell's Cave in San Marcos at no cost to the Authority. The easement will continue to protect a parcel of recharge zone land from development and will also facilitate continued data collection by the Authority at Ezell's Cave. Conduits in Ezell's Cave are large enough to facilitate human access to the Edwards Aquifer water table. The cave is known to contain the Texas blind salamander, a species that is protected under the Federal Endangered Species Act, and a species that the Authority is required to protect pursuant to a pending Habitat Conservation Plan (HCP).

Authority directors also received a technical briefing from Dr. Sue Hovorka, The University of Texas - Bureau of Economic Geology (BEG). Dr. Hovorka demonstrated a three dimensional (3-D) representation of the Edwards Aquifer that indicates the dynamics of the aquifer system. The work performed in cooperation with the Authority, Witte Museum, San Antonio Water System, U.S. Geological Survey, and Worthington Groundwater was developed for an Edwards Aquifer educational exhibit currently under construction at the Witte Museum.

In other business, Authority directors adopted an omnibus final order granting one groundwater withdrawal permit representing approximately 740 acre-feet of Edwards Aquifer groundwater withdrawal rights. The board also approved an agreed final order and permit for three applicants who had previously filed protests on their proposed permits. After further review of the applicant's files, all parties to these contested permit proposals agreed on a proposed permit amount when the applicant provided additional documentation to substantiate their claims for more Edwards groundwater than originally proposed by staff. This agreed final order represents approximately 2,300 acre-feet of Edwards groundwater.

Authority directors also referred one permit application to the State Office of Administrative Hearings (SOAH). This application will be tried before a SOAH Administrative Law Judge, who will recommend a final action.

Edwards Aquifer Optimizations Program Update

by John Hoyt, Program Manager – Aquifer Science

The basic description and purpose of the Edwards Aquifer Optimization Program (EAOP) is repeated in the following paragraph to provide background information for new readers and to provide a reference for the regular reader. Subsequent paragraphs provide information relevant to the specific report month.

The Edwards Aquifer Authority (the Authority) has undertaken the Edwards Aquifer Optimization Program (EAOP), a comprehensive program for the study and management of the Edwards Aquifer. The EAOP includes a series of seventeen interrelated, mission-directed biologic and hydrogeologic research studies known as the Optimization Technical Studies (OTS). The OTS are designed to evaluate potential technical options for increasing the amount of water stored in the Edwards Aquifer and identify various methods for optimizing the amount of water available for withdrawal. Data and information obtained from the OTS will provide aquifer managers with the tools necessary to make scientifically-sound decisions to benefit aquifer users and preserve the environment supported by the aquifer, including the Comal and San Marcos Springs and downstream aquatic habitats.

In May 2004, the board of directors did not approve any OTS related items. The Research and Technology (R&T) Committee approved one OTS-related item in May. The R&T Committee approved the selection of Southwest Research Institute (SwRI®) to further characterize the Edwards Aquifer flow system in Uvalde County. The board will consider the selection in June and may instruct staff to develop a contract between the Authority and SwRI® to perform the work. The study is a focused flowpath project that will lead to a better understanding of the effect of the "Knippa Gap" on flow within the Edwards Aquifer. The study will result in an improved conceptual model regarding the hydrologic budgets within Uvalde County including the contribution of the Uvalde Pool to the San Antonio Pool.

In addition to the OTS-related item discussed above, the following OTS-related studies are currently underway or have been completed:

Biologic Studies

- Texas wild-rice reproduction.
- Comprehensive and Critical Period Monitoring Program to Evaluate the Effects of Variable Flow on Biological Resources in the Comal and San Marcos Springs Ecosystems.
- Cagle's Map Turtle instream flow and habitat requirements (completed)

Flowpath/Modeling Studies

- Edwards Aquifer computer model development - MODFLOW



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Edwards Aquifer Optimization Program Update (continued)

by John Hoyt, Program Manager – Aquifer Science

- Development of management modules for the Edwards Aquifer MODFLOW model
- Karst aquifer modeling research (AWWARF study)
- Edwards Aquifer freshwater/saline water interface studies
- North Medina County Flow Path Study - Hydrologic budget analysis of Medina Lake and Diversion Lake
- North Medina County Flow Path Study - Helicopter electromagnetic survey in the vicinity of Seco Sinkhole (completed)
- North Bexar County Flow Path Study - Analysis of structural controls on the Edwards and Trinity Aquifers interface in the Camp Bullis Quadrangle and surrounding area (completed)
- North Bexar County Flow Path Study - Analysis of structural controls on the Edwards and Trinity Aquifers interface in the Helotes Quadrangle.
- North Bexar County Flow Path Study - Helicopter electromagnetic survey in the vicinity of Camp Bullis
- Tracer testing of aquifer flowpaths at Comal and San Marcos springs.
- Leona Formation geophysical survey (completed)
- Development of updated methods for calculating recharge to the Edwards Aquifer (pilot models for the Blanco and Nueces river basins, recharge area, completed)
- Statistical Analysis of Hydrologic Data (completed)
- Edwards Aquifer fracture/conduit study (completed)

Recharge Enhancement Studies

- Range management - paired watershed study at Honey Creek and Government Canyon State Natural areas
- Range management - augmenting aquifer recharge through brush management
- Analysis of recharge and recirculation
- Evaluation of augmentation methodologies in support of in-situ refugia at Comal and San Marcos springs

If you have questions regarding the studies listed above, please call John Hoyt, P.G., Program Manager Aquifer Science.



Real-time Precipitation Gauging System

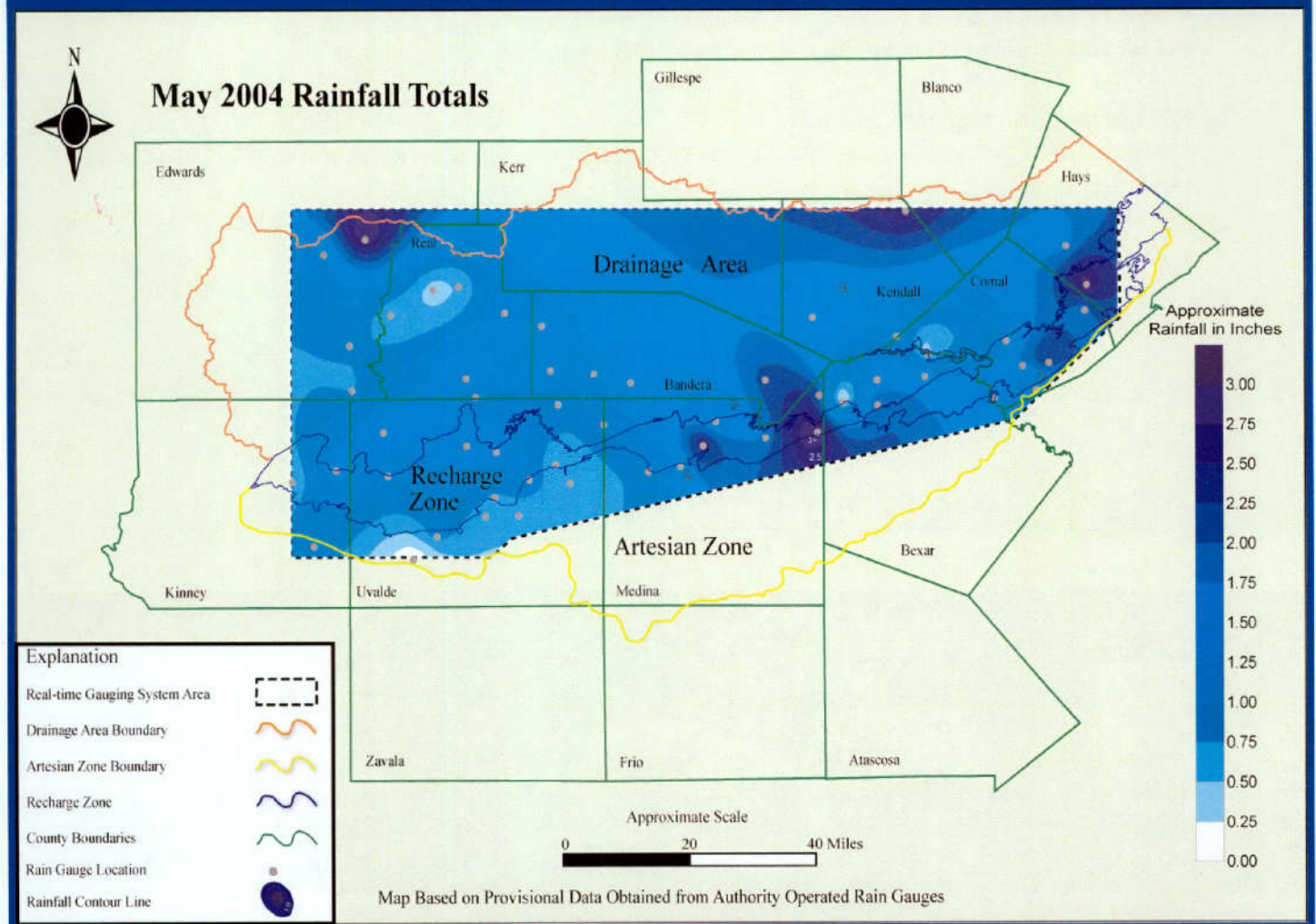
by Earl Parker, Program Manager – Investigations and Monitoring

The Authority operates 65 "real-time" precipitation gauges that transmit data to the Authority office every 6 minutes. The rain gauges are generally located over the Edwards Aquifer Recharge Zone and Drainage Area. Acquired data are used in aquifer recharge calculations, precipitation enhancement program evaluations, and a variety of research projects.

The attached map of the May 2004 rainfall totals, as recorded by the real-time gauging system, indicates a wide distribution of precipitation was recorded over the gauging system area. The average rainfall measured this month was 1.3 inches with the highest measurement of just over 3 inches recorded in northeastern Edwards County. Rainfall totals exceeding 2 inches were recorded in areas of northern Kendall County, northeastern Medina County and southwestern Hays County. While the rainfall distribution was widespread in May, it mostly occurred prior to May 14; only very light and sporadic rainfall was recorded in the last 17 days of May. While May is typically the wettest month for the region, the average rainfall measured by the remote gauging system in May was only a fraction of the 4.5 average rainfall measured by the system in April.

If you have questions regarding the attached map or the Authority's real-time precipitation gauging system, please call Earl Parker, Program Manager - Investigations and Monitoring.

May 2004 Rainfall Totals



Employee News

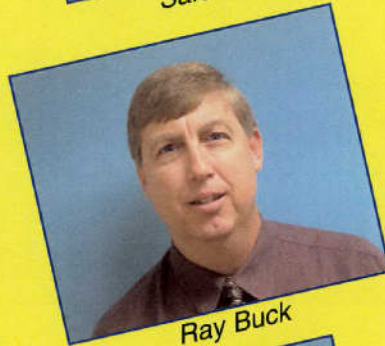
by Margaret Garcia, Program Manager – Public Affairs



Tracy White



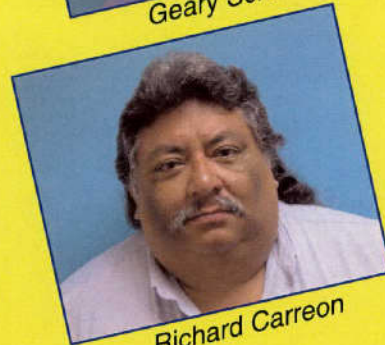
Sarah Flores



Ray Buck



Geary Schindel



Richard Carreon

In May, the Authority welcomed two new employees, Tracy White and Sarah Flores.

Tracy White joined the Authority's Administration Team as Information Systems Technician. Tracy holds an Associates degree in Computer Studies from the University of Maryland. Prior to coming to the Authority, Tracy worked for Community Bank in Buedingen, Germany as a Customer Service Representative. Tracy also worked for the Directorate of Community and Family Activities (DCFA) for Ft. Polk Louisiana as an IT Specialist for four years where she rebuilt computers, installed software, and was system administrator for 400 computers and 14 servers.

Sarah Flores joined the Authority as Public Education Associate and is a member of the Public Affairs Team. Sarah holds a Bachelors degree from Texas State University in Resource and Environmental Studies. She is currently working on her Masters in Education and hopes to attain this degree by the end of 2004. Prior to coming to the Authority, Sarah worked for Aquarena Center as a Tour Guide and Aquarium Technician where she taught programs about the Edwards Aquifer and San Marcos springs. Sarah also worked for the Witte Museum as a Manager of Education Services for 3 1/2 years where she coordinated educational programs for children and adults, conducted overnight camp-ins for children and held teacher workshops.

As of May, Ray Buck, Geary Schindel and Richard Carreon completed five years of service with the Authority.

Ray Buck joined the Authority Groundwater Management Strategies as Water Resources Coordinator on February 17, 1999. He holds a Bachelors of Science in Biology and a Master of Business Administration both from Texas A&M University. Prior to coming to the Authority, Ray worked for Bandera County River Authority and Springhills Groundwater Management District as General Manager. Ray is a certified planner with the American Institute of Certified Planners (AICP) and is a registered sanitarian and site evaluator for on-site sewage facilities.

Geary Schindel joined the Authority as Chief Technical Officer on April 5, 1999. Geary manages and develops technical studies including research and optimization, flowpath/modeling, biological monitoring efforts, precipitation enhancement, comprehensive water management plans, habitat conservation plans and data collection/evaluation. Geary has held positions as Project Manager and Director of Karst Hydrology for Eckenfelder, Brown and Caldwell; Manager of the Environmental Division of ATEC Associates; and Manager of the Groundwater Branch for the Kentucky Water Division. He has also worked as a research assistant at Mammoth Cave National Park and at the Center for Cave and Karst Studies at Western Kentucky University.

Richard Carreon joined the Authority's Investigations and Monitoring Team as Field Representative on April 26, 1996. Richard came to the Authority after working for San Antonio Water System as storm water specialist for over 12 years. Richard currently performs compliance investigations in support of enforcement actions and water meter inspections.

Well Construction Program

by Rick Illgner, Program Manager – Groundwater Management Strategies

In May, Authority staff issued 21 well construction and plugging permits. This total includes 10 exempt Edwards Aquifer domestic well permits, 3 exempt Edwards Aquifer domestic/livestock well permit, 1 plugging permit, and 7 permits to "drill through" the Edwards Aquifer.

For more information regarding the Authority's Well Construction Program contact Jeff Robinson, Regulatory Programs Coordinator.

Groundwater Withdrawal Transfers

by Rick Illgner, Program Manager – Groundwater Management Strategies

In May, Authority staff processed 10 partial sales and lease transfers representing 1753.776 acre-feet in Edwards Aquifer groundwater withdrawal rights. Since the inception of the transfer program, Authority staff has processed 1051 partial sales and lease transfers representing 194121.409 acre-feet of groundwater withdrawal rights. Of the 1051 partial sale and lease transfers completed, only 766 are currently active representing 140741.693 acre-feet. Active transfers include 122 sub-leased transfers representing 27353.332 acre-feet.

In addition, Authority staff processed 9 changes of ownership or miscellaneous transfers representing 66.920 acre-feet of Edwards Aquifer groundwater.

May 2004 Transfer Table Summary

Transfer Description	Number of Transfers	Acre-Feet
May (5/1/04 - 5/31/04) Transfers (Partial Sales, Leases, Sub-leases, and Re-sales)	10	1753.776
May (5/1/04 - 5/31/04) 100% Change of Ownership (Sale of Place of Use) or Miscellaneous Transfers	9	66.920
Total Number of Transfers (Partial Sales, Leases, and Sub-leases, and Re-sales) Completed as of 5/31/04	1051	194121.409
Total Number of Active Transfers (Partial Sales, Leases, Sub-leases, and Re-sales) as of 5/31/04	766	140741.693
Total Number of Active Sub-leased Transfers as of 5/31/04	122	27353.332
Total Number of Active Re-sale Transfers as of 5/31/04	105	3505.892

Transfer forms are located at the Authority's main office located at 1615 N. St. Mary's Street. For more information, contact Naomi Esquivel, Program Associate.

Aquifer Management Fees

by Brock Curry, Program Manager – Administration

On January 13, staff issued 294 non-agricultural aquifer management fee invoices based on authorized use for 2004. These invoices were based on an aquifer management fee rate of \$29.00 per acre-foot. As of May 31, the Authority has collected \$4,334,255 or 46% of the budgeted amount. Aquifer management fees totaling \$25,414 from 16 pumpers are considered delinquent.

Aquifer management fees for 2003 agricultural use were due January 31. As set forth in the Edwards Aquifer Authority Act, the aquifer management fee rate for agricultural users is \$2.00 per acre-foot. As of May 31, the Authority has received reports from 651 agricultural users totaling 82,544 acre-feet of groundwater used in 2003. To date, the Authority has collected \$163,070 in aquifer management fee revenue or 82% of the amount budgeted.

If you have questions regarding the aquifer management fees, please call Brock Curry, Program Manager – Administration.

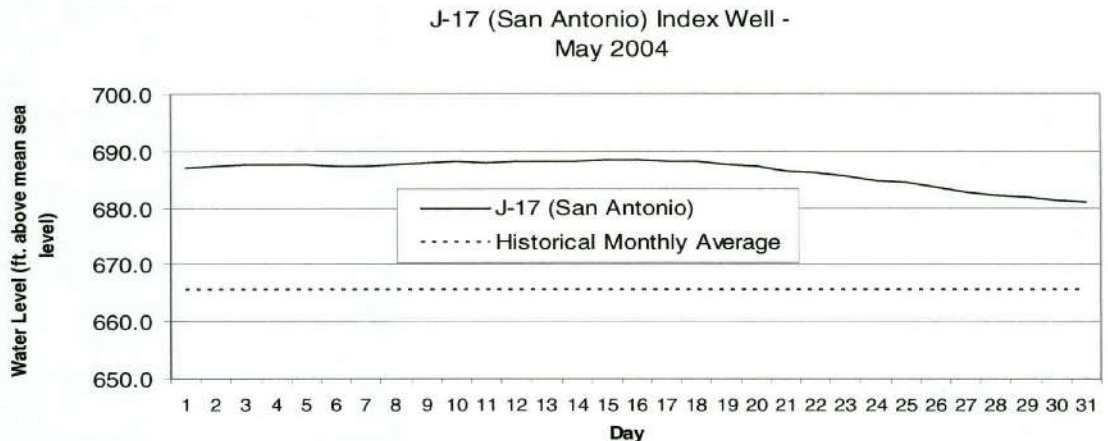
Monthly Water Level & Springflow Report

Aquifer levels can be viewed on the Authority's web site at www.edwardsaquifer.org

J-17 (San Antonio) Index Well – May 2004

The J-17 index well level average in May 2004 was 686.4' above mean sea level (msl) - up 1.9 feet from last month's average of 684.5' msl. The May 2004 high was 688.6' (last occurring on May 16) and the low was 681.1' (May 31), a range of 7.5 feet.

The May 2004 average is 20.8 feet above the J-17 historical monthly average for May of 665.6' msl.



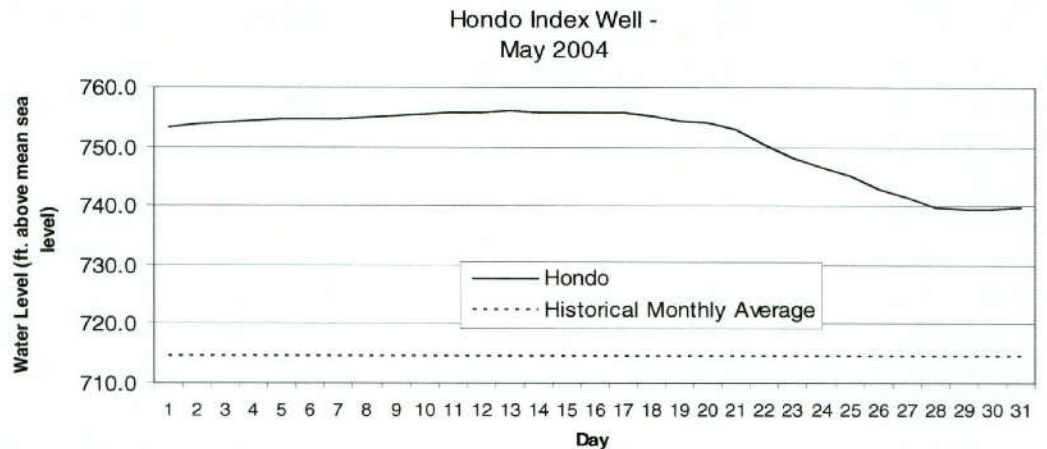
J-17 (San Antonio) Index Well – Combined Historic Record for Two Wells: 1932-2003

	May 2004	May 2003	Historical Record	
Maximum	688.6	683.8	June 14, 1992	703.3
Minimum	681.1	672.5	August 17, 1956	612.5
Average	686.4	678.4	May (1932-2003)	665.6

Hondo Index Well – May 2004

The Hondo index well level average in May 2004 was 751.1' above mean sea level (msl) - up 3.8 feet from last month's average of 747.3' msl. The May 2004 high was 756.0' (May 13) and the low was 739.5' (May 30), a range of 16.5 feet.

The May 2004 average is 36.5 feet above the Hondo Well historical monthly average for May of 714.6' msl.



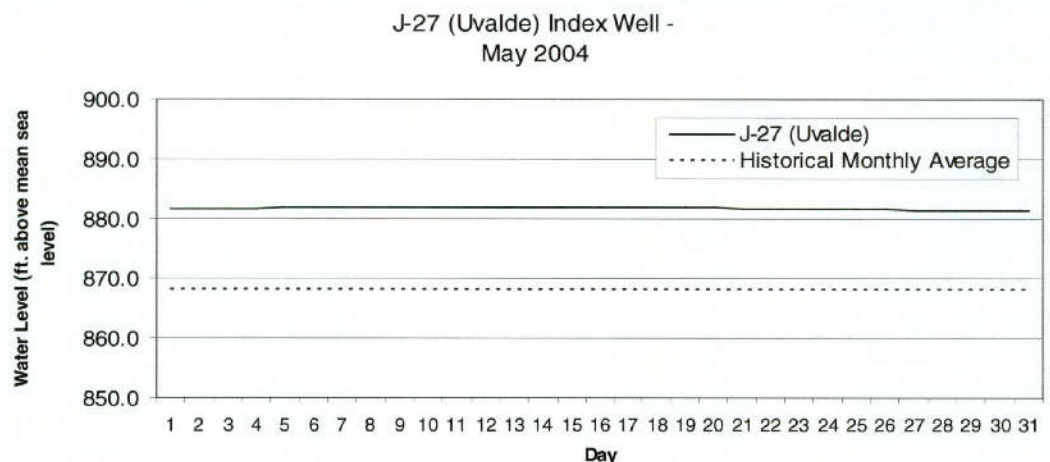
Hondo Index Well – Historic Record: 1986-2003

	May 2004	May 2003	Historical Record	
Maximum	756	737.2	June 14, 1992	779.0
Minimum	739.5	720.6	June 29, 1990	651.0
Average	751.1	728.7	May (1986-2003)	714.6

J-27 (Uvalde) Index Well – May 2004

The J-27 index well level average in May 2004 was 881.8' above mean sea level (msl) - up 1.0 feet from last month's average of 880.8' msl. The May 2004 high was 882.0' (last occurring on May 18) and the low was 881.3' (last occurring on May 31), a range of 0.7 feet.

The May 2004 average is 13.7 feet above the J-27 historical monthly average for May of 868.1' msl.



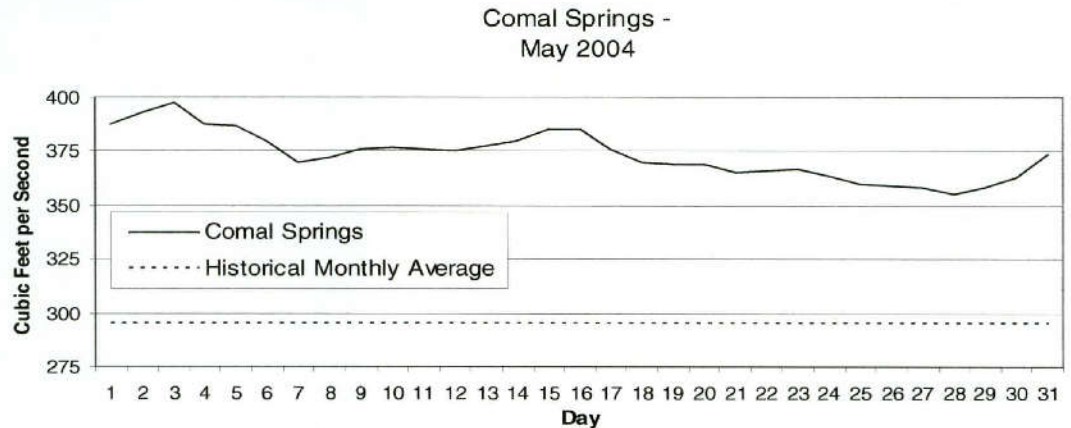
J-27 (Uvalde) Index Well – Historic Record: 1940-2003

	May 2004	May 2003	Historical Record	
Maximum	882.0	880.5	June 15, 1987	889.0
Minimum	881.3	878.5	April 13, 1957	811.0
Average	881.8	879.4	May (1940-2003)	868.1

Comal Springs – May 2004

Comal springflow averaged 374 cubic feet per second (cfs) in May 2004 - up 5 cfs from last month's average of 369 cfs. Comal springflow ranged from a maximum of 398 cfs (May 3) to a minimum of 355 cfs (May 28), a range of 43 cfs.

The May 2004 average was 78.6 cfs above the historical monthly average of 295.4 cfs.



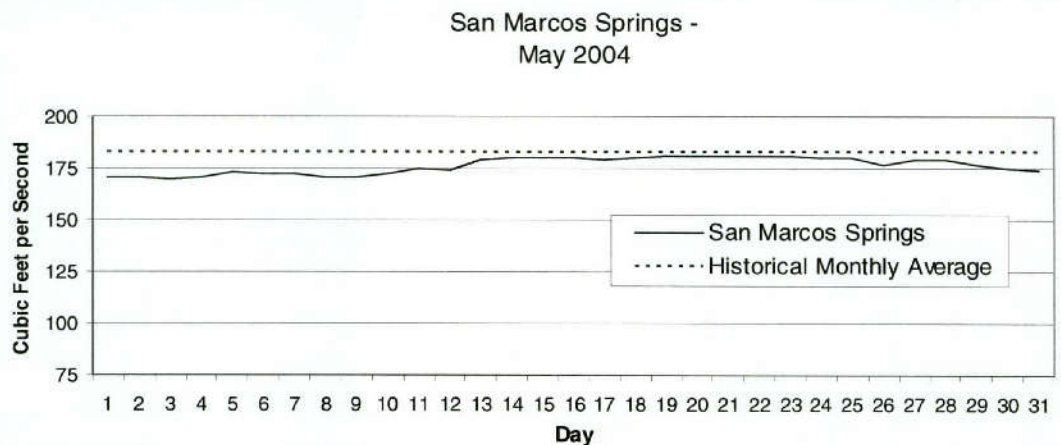
Comal Springs Historic Record: 1927-2003

	May 2004	May 2003	Historical Record	
Maximum	398	396	October 14, 1973	534.0
Minimum	355	360	August 8, 1956	0.0
Average	374	380	May (1927-2003)	295.4

San Marcos Springs – May 2004

San Marcos springflow averaged 176 cfs in May 2004 - up 18 cfs from last month's average of 158 cfs. San Marcos springflow ranged from a maximum of 181 cfs (last occurring on May 23) to a minimum of 170 cfs (May 3), a range of 11 cfs.

The May 2004 average was 6.4 cfs below the historical monthly average of 182.4 cfs.



San Marcos Springs Historic Record: 1956-2003

	May 2004	May 2003	Historical Record	
Maximum	181	259	March 12, 1992	451.0
Minimum	170	227	August 15, 1956	46.0
Average	176	246	May (1956-2003)	182.4



**EDWARDS AQUIFER
AUTHORITY**

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www.edwardsaquifer.org

BE AQUIFER AWARE

CALENDAR OF EVENTS FOR JUNE & JULY

JUNE

Tues. 6/8	3 PM	Board Meeting, Edwards Aquifer Authority, Conference Center 1615 N. St. Mary's Street, San Antonio, Texas
Tues. 6/22	11 AM 1 PM 2 PM	Aquifer Management Planning Committee Permits Committee Legislative Committee
Wed. 6/23	11AM 1PM 2 PM	Finance/Administrative Committee Ad Hoc Committee R&T Committee

JULY

Mon. 7/5		Independence Day Holiday, EAA Offices Closed
Tues. 7/6	12 PM	Executive Committee
Tues. 7/13	3 PM	Board Meeting, New Braunfels Civic Center, 380 S. Seguin Ave., New Braunfels, Texas
Tues. 7/27	11 AM 1 PM 2 PM	Aquifer Management Planning Committee Permits Committee Legislative Committee
Wed. 7/28	11AM 2 PM	Finance/Administrative Committee R&T Committee

Authority meeting times & dates are subject to change.

Visit our website at www.edwardsaquifer.org for up-to-the minute information on meeting times and dates.