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EDWARDS AQUIFER AUTHORITY

# GENERAL MANAGER'S REPORT

APRIL 2002

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BY GEARY SCHINDEL, CHIEF TECHNICAL OFFICER

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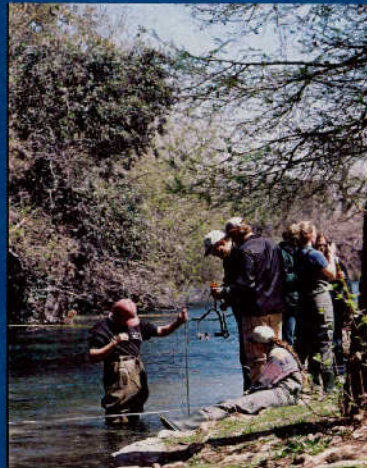
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Editor: Margaret Garcia  
Graphic Design: Lisa Llamas

The General Manager's Report  
is published monthly.

**Our Mission:**

The Authority is committed to manage and protect the Edwards Aquifer system and work with others to ensure the entire region of a sustainable, adequate, high quality and cost effective supply of water, now, and in the future.



On Friday, March 22, 2002, the Edwards Aquifer Authority initiated two tracer tests in the Edwards Aquifer at Comal Springs in New Braunfels, Texas.

The purpose of these tests was to determine the relationships of groundwater flow paths between the recharge zone and the artesian zone of the aquifer which converge at Comal Springs. Results will be used to identify preferential flow paths between the two zones and estimate groundwater velocities. The data collected will assist the Authority in designing water quality monitoring strategies for the springs.

The tracer tests involved the injection of small quantities of harmless nontoxic dye into two wells near Comal Springs. The first dye injection occurred in the Comal Plant No. 3 (LCRA) well, located approximately 600 feet from the main orifice at Comal Springs. The LCRA well is almost 1,000 feet deep and is completed in the deep artesian zone of the aquifer. The well casing extends from the surface to a depth of over 600 feet to the top of the Edwards Limestone. An extension pipe was placed on the well casing to shut in this flowing artesian well. Approximately 600 feet of small diameter tubing was placed down the well casing, and uranine, a green dye, was injected at the base of the casing. The New Braunfels Fire Department than injected approximately 3,000 gallons of water into the top of the casing to push the dye into the formation.



The second dye injection occurred at the Panther Canyon Well, located approximately 350 feet northwest of the main Comal Springs. This well is located in the up thrown block (recharge zone) of the Edwards Limestone and is approximately 260 feet deep. Eosine, a red dye, was placed into the well also using small diameter tubing. Approximately 350 gallons of water were then used to flush the dye into the formation.

*(continued on next page)*

## Authority Studies Edwards Aquifer Flow paths (continued)

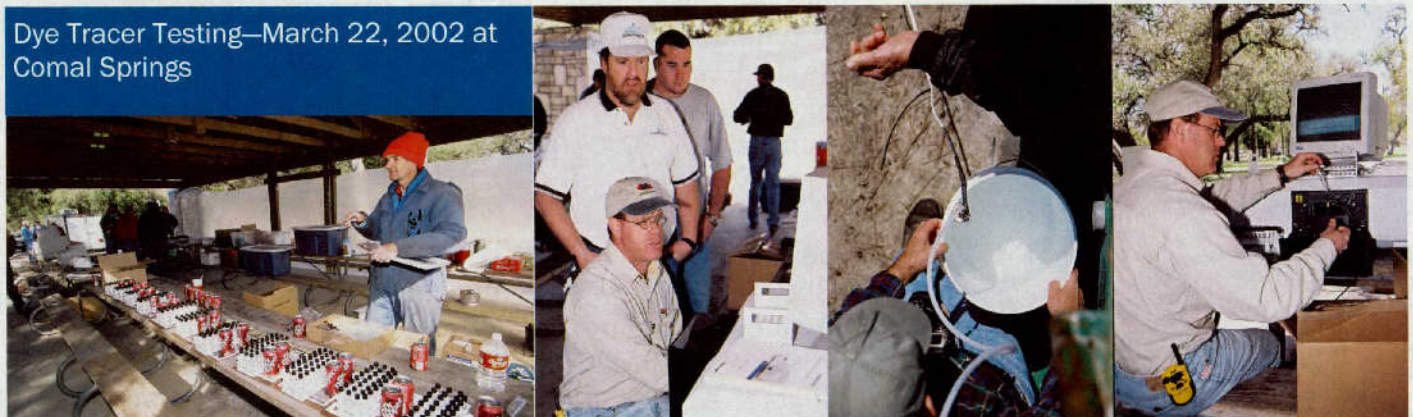


Over thirty locations along Landa Lake and the Comal River were intensely monitored for the presence of dye for the first five days. More limited monitoring is still occurring. To date, over 1,000 samples have been collected and analyzed, many of these samples were analyzed in near real time with the Authority's scanning spectrofluoro-photometer, an instrument specifically designed to detect very small concentrations of dye (10 parts per trillion or the equivalent of 10 seconds in 130 years).

Eosine, the red dye injected in the Panther Canyon well was detected about 3 hours after injection in a series of springs in Spring Run 3 (the spring run located along the base of the hill below California Drive which discharges beside the Gazebo at Landa Lake). The dye was slightly visible for about 1 hour and provided a nice positive response to participants. Groundwater velocities in this portion of the aquifer may be as great as 6,000 feet per day.

Uranine, the green dye injected into the LCRA well began to appear in Landa Lake Saturday night. The dye was first detected in low concentrations from samples in an automatic water sampler located on a foot bridge downstream from Landa Lake. Subsequent samples collected from springs located in the middle of Landa Lake as well as along the hillside showed the presence of dye. Groundwater velocities in the deeper artesian zone ranged from approximately 600 to 2,000 feet per day.

The Authority is still processing the data collected from this study and will use the information to design future tracer tests that will help unravel the complexities of the aquifer.



## Authority Studies Edwards Aquifer Flowpaths (continued)

Thanks  
to  
all!



Thanks to all of the participants that helped with the tracer test, especially the New Braunfels Utilities, New Braunfels Parks and Recreation Department, and the New Braunfels Fire Department.

Over 85 volunteers participated in the event including representatives from the following public agencies, private companies, and universities:

New Braunfels Utilities  
 City of New Braunfels Parks and Recreation Department  
 City of New Braunfels Fire Department  
 Texas Water Development Board  
 US Geological Survey  
 US Fish and Wildlife Service  
 Guadalupe Blanco River Authority  
 Barton Springs Edwards Aquifer Groundwater Conservation District

University of Texas – Bureau of Economic Geology  
 University of Texas at Austin  
 University of Texas at San Antonio  
 Texas A & M University  
 University of Minnesota  
 Tarleton State University

Worthington Groundwater  
 Schnitz Consulting  
 Southwest Research Institute, Center for Nuclear Waste Regulatory Analyses  
 George Veni and Associates  
 SWCA  
 LBG-Guyton Associates  
 Horizon Environmental Services, Inc (HES)

## **March 2002 Board Meeting**

**by Margaret Garcia, Public Affair Program Manager**

At their regular monthly meeting held Tuesday, March 12, 2002, Edwards Aquifer Authority directors approved draft proposed rules for a new chapter of EDWARDS AQUIFER AUTHORITY RULES regarding water quality. These two subchapters address definitions and water quality rules related to banning the installation of new petroleum storage tanks on the recharge zone. The General Manager will now assess these rules for their possible economic, environmental and health impacts. Once the assessment is completed and approved by the board, the Authority will then hold public hearings to receive public comment.

Authority directors also approved draft proposed rules for six other existing chapters of EDWARDS AQUIFER AUTHORITY RULES to repeal, amend or add new rules to these regulations. These chapters include general provisions, general definitions, jurisdiction of the Authority, procedure before the Authority, fees and groundwater withdrawal permits. The General Manager will also conduct assessments on these rules.

In addition, the board declared the position of Director District 3 Bexar County vacant. Staff will advertise for this position in April 2002. Weir Labatt, former Director District 3, Bexar County, resigned his position on the Authority board in February after his appointment by Governor Rick Perry to the Texas Water Development Board (TWDB). The TWDB oversees state water planning and development. Mr. Labatt served on the Authority board since 1996.

In other action, the board adopted an omnibus final order approving two initial regular permits representing approximately 1,863 acre-feet of Edwards groundwater. In addition, the board approved three applications, totaling approximately 940 acre-feet, to transfer the use of these groundwater rights from west of Cibolo Creek to points east of the creek. Cibolo Creek is considered the dividing line between the western and eastern portions of the aquifer, and separates that portion of the aquifer most immediately affecting the flow at Comal Springs.

Authority directors also approved a \$46,841 agricultural water conservation loan to Mr. Kenneth Verstuyft. The agricultural water conservation loan program provides low-interest loans to farmers for the purchase of water saving irrigation equipment. Directors also approved an agreement between the Authority and New Braunfels Utilities for the use of a Comal County well to be used for water level monitoring and water quality sampling. The board also approved an agreement with the U.S. Army Corps of Engineer to analyze the interface between the Edwards and Trinity Aquifers and generate a three-dimensional computer model showing the potential hydrologic communication between the two.

## **Well Construction Program**

**by Steven Walthour, Permitting & Enforcement Program Manager**

In March, Authority staff mailed letters to eighty-seven water well drillers informing them of the Authority permitting requirements regarding the construction of water wells within its boundaries. A jurisdictional boundary map was included to enable the drillers to ascertain their location and maintain compliance with Authority requirements. Authority staff is currently meeting with individual water well drillers to further cooperation and compliance between the Authority and drillers.

In February, Jeff Robinson, Regulatory Programs Coordinator, delivered a presentation to the Bexar County Law and Environmental Enforcement Network (BCLEEN) concerning the Authority's well construction program. BCLEEN is a new organization comprised of local, regional, state, and federal regulatory agencies trying to preserve and protect environmental quality within the community.

## **2002 Aquifer Management Fees**

**by Brock Curry, Administrative Program Manager**

In March, the Authority collected \$1,032,470 in aquifer management fees from non-agricultural users. This amount represents payment from 184 users paying their fees in full and 40 users who will make monthly payments throughout 2002. As of March 31, Seventy-four accounts representing \$229,754 is considered delinquent.

The Authority collected \$1,909 in aquifer management fee revenue from agricultural users for groundwater used in 2001. Invoices will be distributed to those agricultural water users who have reported their 2001 use on April 3. These invoices, totaling \$199,163 will be reflected as either receivable accounts or revenue in April.

## **Groundwater Withdrawal Transfers**

**by Steven Walthour, Permitting & Enforcement Program Manager**

Authority staff continues to receive and process notices of water right transfers from Initial Regular Permit (IRP) holders, and applicants of an Initial Regular Permit, authorized with interim authorization status. In March, Authority staff processed 3 transfers representing 250.800 acre-feet in groundwater withdrawal rights. In addition, Authority staff processed 4 changes of ownership or miscellaneous transfers

Since the inception of the transfer program, Authority staff has processed 539 transfers representing 101,630.048 acre-feet of groundwater withdrawal rights. Activity regarding the transfer of groundwater withdrawal rights will continue to increase as municipal and industrial pumpers acquire enough groundwater withdrawal rights to meet their needs.

## **Authority Forms Ad Hoc Committee to Consider Options to Retiring Water Rights**

**by Rick Illgner, Planning & Conservation Program Manager**

The Texas Legislature created the Edwards Aquifer Authority (the Authority) in 1993 to preserve and protect the Edwards Aquifer. The Legislature also mandated the Authority limit total groundwater withdrawals from the Edwards Aquifer to no more than 450,000 acre-feet annually through 2007. The total amount of withdrawals from the Edwards Aquifer is managed through initial regular permits granted to applicants based on historical use. The Authority has proposed permits, based on statutory entitlements, totaling over 532,000 acre-feet. This amount is over 82,000 acre-feet more than the maximum allowed by the Edwards Aquifer Authority Act (the Act).

The reduction to 450,000 acre-feet is known as withdrawal reduction or the "buydown". The exact cost of the buydown is unknown but has been studied by the Authority. However, a specific plan of action to meet the state-imposed "cap" is still under development. In December 2001, the Authority received a General Counsel Opinion stating the Authority did not have the capability of issuing revenue bonds as specified in the Act for the purpose of acquiring groundwater rights for retirement. Subsequently, an Ad Hoc Committee named the Withdrawal Limit Compliance Committee (WLCC) to investigate alternatives to the buydown and permit retirement. A recommendation must be submitted to the board regarding this issue by December 2002. The WLCC meets twice a month and the meetings are open to the public. Input on this important issue from affected parties is appreciated. If you have questions or want more information, please contact Mr. Rick Illgner, Program Manager Planning & Conservation at, 210-222-2204 or (800) 292-1047.

## Edwards Aquifer Optimization Program Update

by John Hoyt, Aquifer Science Program Manager

The basic description and purpose of the Edward 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 March Authority directors took action on two OTS-related items. The board approved a work scope to be included in a request for qualifications (RFQ) for an Edwards Aquifer recharge and recirculation (R&R) concept evaluation. The R&R concept is that of an integrated and coordinated approach to water management that combines groundwater and surface water sources and storage units. The concept is to take advantage of a large variety of supply options to store water so as to optimize the availability of water to users in the Edwards Aquifer pumping region and to accommodate the water requirements of endangered species. The R&R RFQ will be advertised in early April. Once statements of qualifications are received and evaluated, a draft contract for the work will be presented to the Research and Technology Committee for consideration.

The board also voted to approve a joint funding agreement (JFA) between the Authority and the U.S Army Corps of Engineers (COE). The JFA will result in a study of geologic structures that may control the interconnection between the Trinity and Edwards Aquifers in northern Bexar County. The COE will subcontract the work to Southwest Research Institute (SWRI) in San Antonio. The purpose of the study is to generate a three-dimensional computer model and predictions of localized fault related deformation in the study area. A second major objective of this study is to analyze the potential hydrologic communication across the interface between the Edwards and Trinity Aquifer, taking into account fault related deformation and juxtaposition across key faults. Work on the study will begin in April.

*(Continued on next page)*



## Edwards Aquifer Optimization Program Update *(continued)*

Other OTS-related studies that receive Authority funding and are currently underway include:

- Comprehensive and Critical Period Monitoring Program to Evaluate the Effects of Variable Flow on Biological Resources in the Comal and San Marcos Springs Ecosystems.
- Texas wild-rice reproduction.
- Cagle's Map Turtle instream flow and habitat requirements.
- Edwards Aquifer computer model development.
- Improved aquifer parameter estimation for computer model in-put data sets.
- Hydrologic budget analysis of Medina Lake and Diversion Lake for the North Medina County Flow Path Study.
- Development of updated methods for calculating recharge to the Edwards Aquifer.
- Edwards Aquifer freshwater/saline water interface studies.
- Edwards Aquifer fracture/conduit study.
- Evaluation of water quality and water quantity benefits of woody species best management practices on selected watersheds in the Edwards Aquifer region.

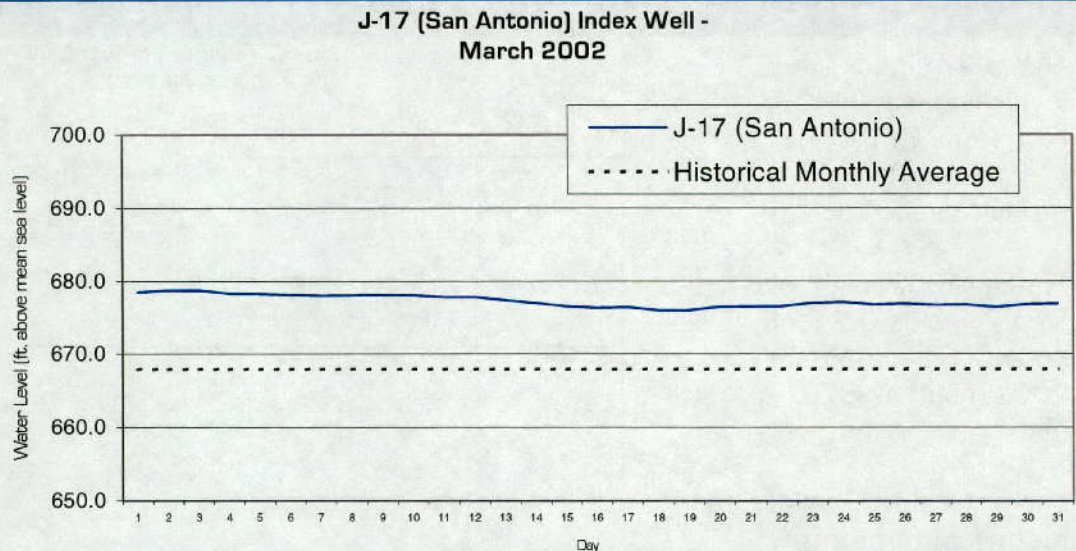
If you have questions regarding the studies listed above, please call John Hoyt, Aquifer Science Program Manager, at (210) 222-2204.

# Monthly Water Level & Springflow Report

## J-17 (San Antonio) Index Well—March 2002

The J-17 index well level average fell 3.4 feet from 680.7' above mean sea level (msl) in February to 677.3' msl in March. The March 2002 high of 678.8' is 3.2 feet below the March 2001 high of 682.0' msl.

The J-17 historical monthly average for March is 667.9' msl.



## J-17 (San Antonio) Index Well—Combined Record for Two Wells: 1932-2002

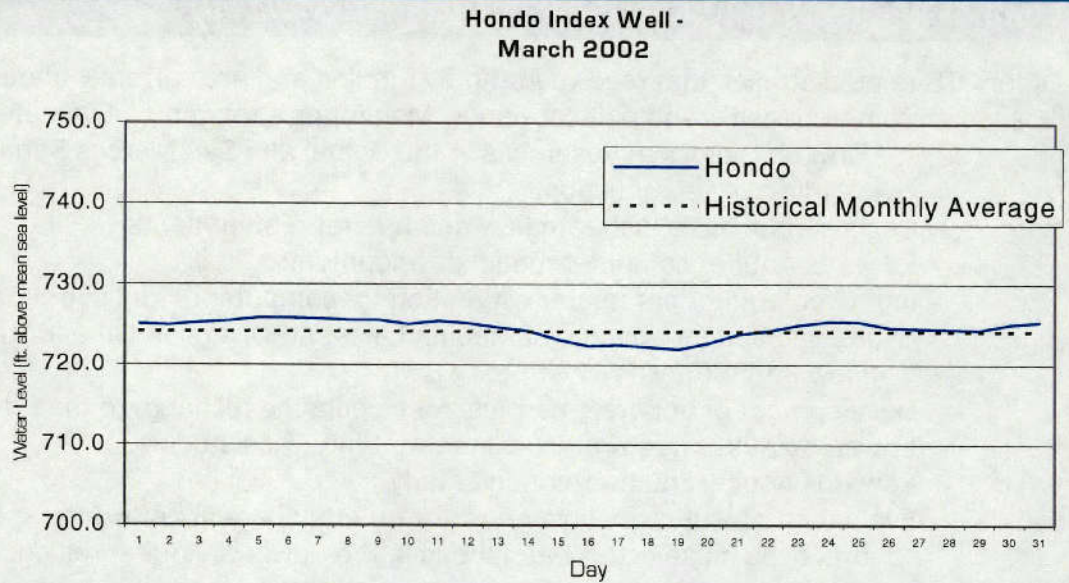
	Mar. 2002	Mar. 2001	Historical Record	
Maximum	678.8	682.0	June 14, 1992	703.3
Minimum	676.0	680.0	August 17, 1956	612.5
Average	677.3	681.1	Mar. [1932-2001]	667.9

## Hondo Index Well—March 2002

The Hondo index well level average fell 3.7 feet from 728.2' msl in February to 724.5' msl in March.

March 2002 high of 725.9' msl is 5.6 feet below the March 2001 high of 731.5' msl.

The Hondo Well historical monthly average for March is 724.1' msl.



### Hondo Index Well—Historical Record: 1986-2002

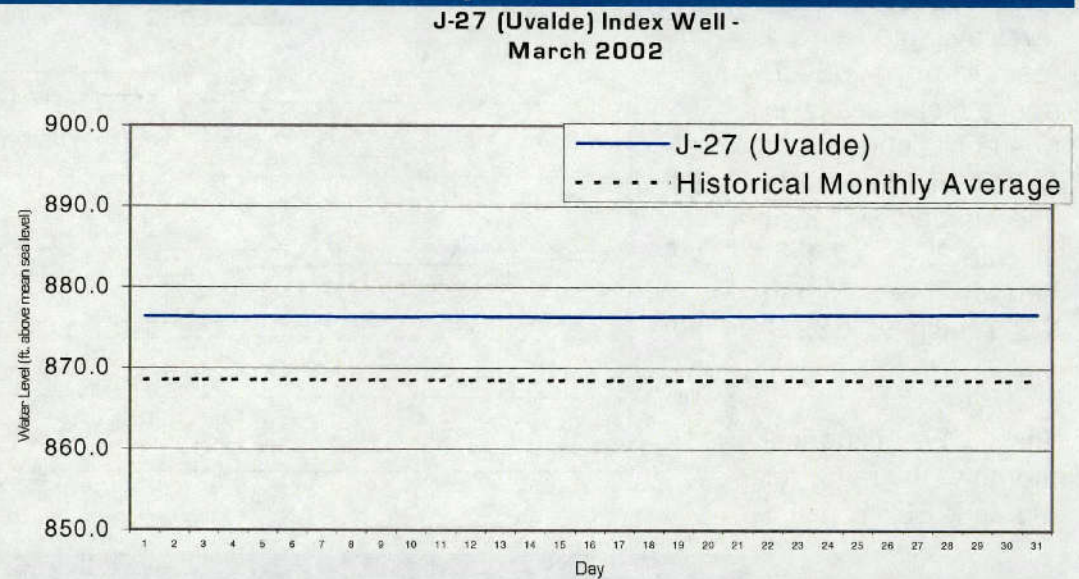
	Mar. 2002	Mar. 2001	Historical Record	
Maximum	725.9	731.5	June 14, 1992	779.0
Minimum	721.9	728.4	June 29, 1990	651.0
Average	724.5	730.0	Mar. (1986-2001)	724.1

## J-27 (Uvalde) Index Well—February 2002

The J-27 index well level average fell 0.7 feet from 877.1' msl in February to 876.4' msl in March.

March 2002 high of 876.7' msl is 0.2 feet above the March 2001 high of 876.5' msl.

The Uvalde Well historical monthly average for March is 868.5' msl.



### J-27 (Uvalde) Index Well Historical Record: 1940-2002

	Mar. 2002	Mar. 2001	Historical Record	
Maximum	876.7	876.5	June 15, 1987	889.0
Minimum	876.3	875.7	April 13, 1957	811.0
Average	876.4	876.1	Mar. (1940-2001)	868.5



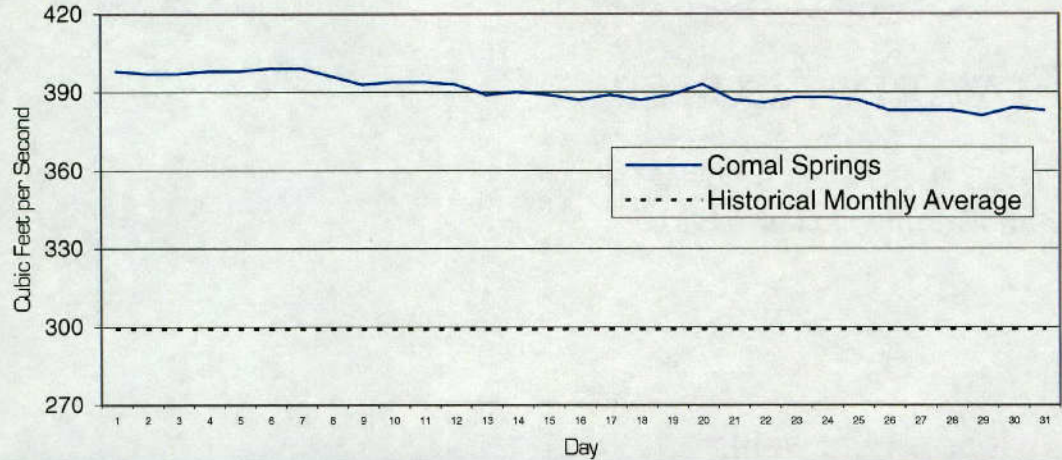
## Comal Springs—March 2002

The Comal springflow reached a maximum flow of 399 cubic feet per second (cfs) on March 6<sup>th</sup>.

The minimum flow occurred on March 29<sup>th</sup> at 381 cfs.

March 2002 average is 390 cfs, which is 90.7 cfs above the historical monthly average of 299.3 cfs.

Comal Springs -  
March 2002



### Comal Springs Historical Record: 1927-2002

	Mar. 2002	Mar. 2001	Historical Record	
Maximum	399	363	October 14, 1973	534.0
Minimum	381	350	August 8, 1956	0.0
Average	390	357	Mar. (1927-2001)	299.3

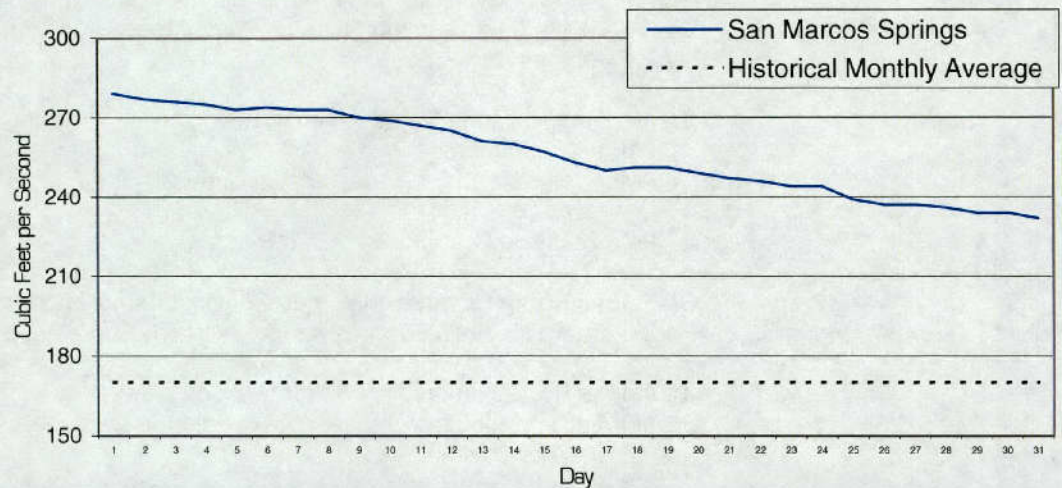
## San Marcos Springs—March 2002

The San Marcos springflow reached a maximum flow of 279 cfs on March 1<sup>st</sup>.

The minimum flow occurred on March 31<sup>st</sup> at 232 cfs.

The March 2002 average is 256 cfs, which is 86.0 cfs above the historical monthly average of 170.0 cfs.

San Marcos Springs -  
March 2002



### San Marcos Springs Historical Record: 1956-2002

	Mar. 2002	Mar. 2001	Historical Record	
Maximum	279	270	March 12, 1992	451.0
Minimum	232	254	August 15, 1956	46.0
Average	256	263	Mar. (1956-2001)	170.0



**EDWARDS AQUIFER**  
A U T H O R I T Y

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## CALENDAR OF EVENTS FOR APRIL & MAY 2002

APRIL

- |            |  |
|------------|--|
| Tues. 4/9  | 4 PM Board Meeting, Edwards Aquifer Authority Conference Center, San Antonio, Texas  |
| Tues. 4/23 | 10 AM Ad Hoc Committee on Withdrawal Limit Compliance<br>11 AM Aquifer Management Planning Committee<br>2 PM Permits Committee |
| Wed. 4/24  | 10 AM Finance/Administrative Committee<br>2 PM R&T Committee<br>4 PM Ad Hoc Committee on Land Acquisition                      |

MAY

- 
- |           |  |
|-----------|--|
| Mon. 5/6  | 12 PM Executive Committee  |
| Tue. 5/14 | 2:30 PM Ad Hoc Committee on Withdrawal Limit Compliance<br>4 PM Board Meeting, Edwards Aquifer Authority Conference Center, San Antonio, Texas |
| Tue. 5/28 | 10 AM Ad Hoc Committee on Withdrawal Compliance<br>11 AM Aquifer Management Planning Committee<br>2 PM Permits Committee                       |
| Wed. 5/29 | 10 AM Finance/Administrative Committee<br>2 PM R&T Committee<br>4 PM Ad Hoc Committee on Land Acquisition                                      |

Questions regarding meeting times and dates, please contact the Authority at 210-222-2204, or visit our website at [www.edwardsaquifer.org](http://www.edwardsaquifer.org)