

Headwaters Underground Water Conservation District

August 25, 1998

CERTIFIED MAIL #P 135 569 559

Mr. Bill Mullican
Texas Water Development Board
P. O. Box 13231
Austin, Texas 78711

Re: Headwaters Underground Water Conservation District's (HUWCD) Management Plan

Dear Mr. Mullican,


The Headwaters Underground Water Conservation District (HUWCD) is pleased to submit to the Texas Water Development Board (TWDB) for administrative approval the District's Water Management Plan, prepared pursuant to the requirements of Senate Bill #1.

Enclosed is the Water Management Plan and the following support documents:

- 1) District Water Management Plan
- 2) Certified Copy of Resolution by Board of Directors adopting plan.
- 3) Copy of Public Notice
- 4) Copy of Posted Agenda
- 5) Copy of the minutes of the Public Hearing
- 6) Copy of certified letters to the City of Kerrville and Upper Guadalupe River Authority, with copy of return receipts, as evidence of the coordination with surface water project entities.
- 7) Response from the City of Kerrville

If there is any further information required, or you have any questions, please contact me at 830-896-5445 or e-mail me at ugrajam@ugra.org.

Sincerely,



Dean Mitchell
President, Board of Directors

HEADWATERS UNDERGROUND WATER CONSERVATION DISTRICT MANAGEMENT PLAN IN COMPLIANCE WITH SB-1

Mission

The Headwaters Underground Water Conservation District (the "District") will develop, promote, and implement water conservation, augmentation and management strategies to protect the water resources of the District for the benefit of its citizens, economy and environment.

Time Period for this Plan

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This plan becomes effective upon certification by the Texas Water Development Board ("TWDB") and remains in effect until a revised plan is certified or until September 1, 2008, whichever is earlier. This plan supercedes and replaces in its entirety the existing District Management Plan dated December 15, 1993.

Statement of Guiding Principles

The District recognizes that the groundwater water resources of the region are of vital importance. The preservation of this most valuable resource can be managed in a prudent and cost effective manner through regulation and permitting. The greatest threats to preventing the District from achieving the stated mission are inappropriate management, based in part on a lack of understanding of local conditions, and abuse of the resources in surrounding areas. A basic understanding of the aquifers and resources is the foundation from which to build prudent planning measures. This planning must also consider and apply sound principles of conjunctive management of both surface and groundwater to ensure correct management of the total water resources within the District. This management document is intended as a tool to focus the thoughts and actions of those given the responsibility for the execution of District activities. The status of all performance standards in this plan will be audited annually by the District Board starting 09/1/99.

District Creation/History

The District was created by HB No. 1463, Chapter 693 of the Texas Legislature, dated January 16, 1991, signed by Governor Ann Richards and filed in the Office of the Secretary of State at 1600 hours, January 16, 1991. The Board of Directors is composed of five members who serve four-year rotating terms, with two members and three members elected on the odd years. The current Board of Directors are Dean Mitchell, President, Jim Haynie, Vice President, Susan Sander, Secretary/Treasurer, Donald Henderson, and George Holekamp.

Demographics

The District boundaries are contiguous with that of Kerr County, Texas. Kerr County encompasses 1,108 square miles located in the "Hill Country" of southwest central Texas. The county is bounded on the north by Kimble and Gillespie counties, on the east by Kendall County and on the south by Bandera and Real counties. Kerrville, the largest city in the county, is also the county seat for Kerr County.

The Kerr County population was 36,304 in 1990 and has had annual population growth rates of 2-4% since 1970. Projected population is 43,822 (year 2000), 60,492 (year 2020), and in the year 2050 population is projected to 85,669.* The growth is fueled by the influx of retirees and people moving from more urbanized locations.

(*Regional Water & Wastewater Planning Study for Kerr County, Texas; HDR Engineering, Inc.; October, 1997.)

The economy is dominated by the real estate, retirement living, youth recreational sectors, as well as, medical services as a result of the high quality natural resources of Kerr County. Agriculture, light industry and manufacturing are minor contributors to the economy within the District.

Topography and Climatic Conditions

The predominantly rough and rolling topography of Kerr County is characteristic of the Edwards Plateau or "Hill Country" region. In the western part of Kerr County the land surface is gently rolling, interrupted by steep slopes and narrow valleys caused by the erosion of resistant limestone beds. Extensive dissection of the plateau in the eastern part of the county has formed wide valleys separated by high hills of generally uniform altitude. The altitude of the land surface ranges from about 1,400 MSL ft. at the southeastern edge of the county to about 2,400 feet in the western part. Historically, the vegetative cover was considered to be an oak/ashe juniper savannah. Presently, second and third growth juniper is increasing in density to the point of being dominant.

Most of Kerr County is drained by the upper Guadalupe River (approximately 75%), which rises in the western part of the county and flows eastward for approximately 40 miles before exiting the county. The Llano and Pedernales Rivers to the north and the Medina River to the south drain small peripheral areas of the county amounting to less than 25 percent of the total area.

Kerr County has a subhumid to semiarid climate coupled with mild winters and hot summers. Annual rainfall ranges from about 32 inches on the eastern edge of the county to about 26 inches on the western edge. Although the average monthly precipitation of 2.58 inches is fairly evenly distributed throughout the year, the heaviest rainfall occurs in May and September. The precipitation usually is sufficient for the production of feed and grain crops.

The average annual temperature at Kerrville is 64° F (18° C); the average monthly temperature ranges from 46°F (8°C) in January to 80°F (27°C) in July and August. Temperatures generally are above freezing during the winter, and the hot summer days are moderated by a low relative humidity. The average annual gross lake-surface evaporation is approximately more than twice the average annual precipitation.

Groundwater Resources of Kerr County

The Trinity Aquifer is the principal source of groundwater in Kerr County. The Trinity Aquifer in the Hill Country is an extension of the lower part of the Edwards-Trinity Aquifer of the Edwards Plateau, with the Edwards group and its equivalents mostly removed. The Trinity Aquifer yields water from cretaceous limestone and sand of the Trinity Group. The Trinity Aquifer is composed of three permeable zones separated by two relatively impermeable horizontal barriers. The Upper Trinity is made up of the upper member of the Glen Rose Limestone formation. The Middle Trinity is composed of the Lower Glen Rose Limestone, the Hensel Sand and the Cow Creek Limestone formations. The Lower Trinity consists of the Hosston and Sligo Formations. The Upper and Middle Trinity are separated by relatively impermeable tight sediments within the Glen Rose Limestone. The Middle and Lower Trinity are separated by the Hammett Shale. Recharge of the Trinity Aquifer occurs through lateral flow of water from the Edwards Plateau, infiltration of precipitation on the outcrop area, and surface water leakage from shallow tributary streams in upland areas. Relatively impermeable inner beds in the Upper and Middle Glen Rose Limestone generally impede the downward percolation of precipitation.

A second, less reliable, aquifer in Kerr County is the Fort Terrett Formation of the Edwards Group. Erosion caused by stream flow off the edge of the Edwards Plateau trending eastward across Kerr County has removed most of the Fredericksburg and Washita strata. Unconfined conditions prevail over parts of the county, varying greatly in response to diverse geologic conditions and topographic effects. The production of wells in the Fort Terrett Formation is usually confined to domestic and stock use. However, the value of this aquifer is realized with maintaining stream flow of the Guadalupe River.

Surface Water Resources of Kerr County

The Guadalupe River predominately (70%) originates as springflow from the Edwards Plateau Aquifer within Kerr County, thus the impetus for "Headwaters" in the name of the District. The larger springs range in flow from 5-15 CFS and chemically reflect the limestone geology of Kerr County. Originally, streams in Kerr County were characterized by shallow, swift flow over bedrock, but now instream impoundments are common components.

The primary surface water source available in Kerr County is the Upper Guadalupe River Basin. With the complexity of the diversion rights system and variations in the flows of the river, the river alone is not a sustainable long term source for municipal and industrial use when drought conditions or conservation plans are considered. However, prudent use

should be made of the available water in the Guadalupe River to protect and extend the capabilities of the groundwater system.

Artificial or Enhanced Recharge

A significant constraint in Kerr County is that only a minimal amount of the annual precipitation results in effective recharge. This dictates that new development must consider alternative water supply sources. Due to additional factors, i.e.: the relatively poor hydraulic characteristics of the area's aquifers; increases in demands; and the inability, or unwillingness, of most public water system owners to adjust to these conditions by obtaining additional lands for proper spacing of additional wells, only a portion of the aquifer's total groundwater productive potential will be available to meet public needs. Conjunctive use of surface water supplies in the Guadalupe River must be achieved to extend the limited groundwater supplies.

In consideration thereof, treated surface water has been successfully stored in and recovered from the Trinity Aquifers in Kerr County. Surface Water Diversion Rights in the amount of 1,408 acre feet/year have been acquired for the purposes of storage in the Lower Trinity Aquifer in the Kerrville area. The District anticipates further research toward the feasibility of expanding recharge projects throughout the District. The District is also considering brush control and water/sediment catchment basins over the Edwards Trinity Plateau for the purposes of enhancing and more effectively recharging that aquifer.

Water Supply and Demand

- I. Estimation of the existing total useable amount of groundwater within the District.
HUWCD accepts the estimated volume of 7,200 acre feet/year* of groundwater as being useable from the combined Trinity Group Aquifer within the District.

**Bluntzer, Robert L., 1992, Report 339 "Evaluation of the Groundwater Resources of the Paleozoic and Cretaceous Aquifers in the Hill Country of Central Texas," Texas Water Development Board.*

- II. Estimation of the amount of groundwater being used annually within the District.
HUWCD accepts the 1995 estimated volume of 4,335 acre feet* as representing the amount of groundwater being used within the District.

**Texas Water Development Board's Water Resources Planning Division 1998, "Estimated Groundwater Pumpage Summary by Major Aquifer Units - Kerr County."*

- III. Estimation of the annual amount of recharge to the groundwater resources within the District.
HUWCD accepts the annual estimated volume of 6,030 acre feet* as being the amount of recharge to the Trinity Group Aquifers within the District.

**Texas Department of Water Resources, 1980, "Groundwater Availability Estimates - Kerr County."*

IV. Estimation of the amount of additional recharge of groundwater within the District.

HUWCD has accepted that the quantity of 2,000 acre feet/annum may be realized through implementation of Water and Sediment Control Catchment Basins¹ and Brush Management Programs².

¹ *Water and Sediment Control Basin Evaluation, Annual Report 1996, Seco Creek Water Quality Demonstration Project (0.00167 acft/inch of rainfall/acre/annum).*

² *Affect of removal of juniperus and ashei on evapotransporation and runoff in the Seco Creek Watershed, USDA-NCRS Fiscal Year Report Dec. 1, 1997.; W.A. Dugous, R.A. Hick, & P.Wright. (0.05 acre feet of enhanced recharge/acre/annual rainfall)*

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V. Estimation of the projected water supply within the District:

HUWCD has accepted the current quantity of 10,596 acre feet* as available water supply within the District.

**Regional Water & Wastewater Planning Study for Kerr County, Texas, page ES-B; HDR Engineering, Inc.; October, 1997.*

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VI. Estimation of the projected water demands within the District.

HUWCD has accepted the following projected demands*:

- 10,155 acre feet for the year 2000;**
- 11,127 acre feet for the year 2010;**
- 12,033 acre feet for the year 2020;**
- 13,189 acre feet for the year 2030;**
- 14,331 acre feet for the year 2040;**
- 15,707 acre feet for the year 2050.**

**Regional Water & Wastewater Planning Study for Kerr County, Texas, p.2-16; KDR Engineering, Inc.; October, 1997.*

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VII Management of Groundwater Supplies

The District has:

- A. Implemented a program to License/Register and Monitor the construction of all new water wells in the District (1994).
- B. Implemented a program to acquire and archive well drilling and completion records, including driller logs for wells drilled in the District (1994).
- C. Implemented a program to monitor ground water levels (1994), quality (1998) and water usages (1998) in the District.
- D. Initiated a program to identify and properly cap/plug abandoned wells (1994).
- E. Implemented a program that provides information to the public to create awareness of water issues on the topics of water conservation, drought contingencies, and waste of groundwater (1994).
- F. Developed a program to study the feasibility of recharging the Edwards formations in West Kerr County (1996).
- G. Adopted District Rules in 1994 with subsequent revision in 1996, and amended in 1997 and 1998.
- H. Adopted district water well construction and completion requirements on 12 June 1996 with subsequent revisions dated 9 April 1997 and 9 July 1997.

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The District will continue to manage the supply of groundwater within the District in order to conserve the resource while seeking to maintain the economic viability of all resource user groups, public and private. In consideration of the economic and cultural activities occurring within the District, the District will identify and engage in such activities and practices, that if implemented, would result in a reduction of groundwater use.

An observation network shall be established and maintained in order to monitor changing storage conditions of groundwater supplies within the District. The District will make a regular assessment of water supply and groundwater storage conditions and will report those conditions to the Board and to the public. The District will undertake, as necessary and cooperate with, investigations of the groundwater resources within the District, and will make the results of such investigations available to the public upon adoption by the District's Board.

The District will adopt rules to regulate groundwater withdrawals by means of well-spacing and production limits. The District may deny a well construction permit or limit groundwater withdrawals in accordance with the guidelines stated in the District rules. In making a determination to deny a permit or limit groundwater withdrawals, the District will consider the public benefit against individual hardship after considering all appropriate testimony.

The relevant factors to be considered in making a determination to deny a construction permit or limit groundwater withdrawals will include:

- 1) the purpose of the rules of the District;
- 2) the equitable distribution of the resource; and
- 3) the economic hardship resulting from grant or denial of a permit or the terms prescribed by the permit.

In pursuit of the District's mission of protecting the resource, the District may require reduction of groundwater withdrawals to amounts which will not cause harm to the aquifer. To achieve this purpose, the District may, at the Board's discretion, amend or revoke any permits after notice and hearing. The determination to seek the amendment or revocation of a permit by the District will be based on aquifer conditions observed by the District. The District will enforce the terms and conditions of permits and the rules of the District by enjoining the permit holder in a court of competent jurisdiction as provided for in TWC '36.102.

A contingency plan to cope with the effects of water supply deficits due to climatic or other conditions will be developed by the District and will be adopted by the Board after notice and hearing. In developing the contingency plan, the District will consider: the economic effect of conservation measures upon all water resource user groups; the local implications of the degree and effect of changes in water storage conditions; the unique hydrogeologic conditions of the aquifers within the District; and the appropriate conditions under which to implement the contingency plan.

The District will employ all technical resources at its disposal to evaluate the resources available within the District, and to determine the effectiveness of regulatory or conservation measures. A public or private user may appeal to the Board for discretion in enforcement of the provisions of the water supply deficit contingency plan on grounds of adverse economic hardship or unique local conditions. The exercise of said discretion by the Board, shall not be construed as limiting the power of the Board.

The majority of the objectives in this section are being addressed by the District's current programs as well as the District Rules and District Well and Construction Standards. The remainder of the elements will be addressed by the goals and objectives of this new District Management plan dated 31 August 98.

VII. Action, Procedures, Performance and Avoidance for Plan Implementation.

The district will implement the provisions of this plan and will utilize the provisions of this plan as a guidepost for determining the direction or priority for all District activities. All operations of the District, all agreements entered into by the District and any additional planning efforts in which the District may participate will be consistent with the provisions of this plan. 8

The District has adopted rules dated 12 June 96 relating to the permitting of wells and the production of groundwater. The rules adopted by the District are pursuant to TWC '36 and the provisions of this plan. All rules will be adhered to and enforced. The promulgation and enforcement of the rules will be based on the best technical evidence available.

The District shall treat all citizens with equality. Citizens may apply to the District for discretion in enforcement of the rules on grounds of adverse economic effect or unique local conditions. In granting of discretion to any rule the Board shall consider the potential for adverse effect on adjacent landowners. The exercise of said discretion by the Board, shall not be construed as limiting the power of the Board.

The District will seek cooperation in the implementation of this plan and the management of groundwater supplies within the District. All activities of the District will be undertaken in cooperation and coordinated with the appropriate state, regional or local water management entity.

IX. Potential Solutions for Projected Water Supply Shortfalls

The projected shortfalls in available water supplies can potentially be addressed with the following options:

1. Obtain additional surface water rights or contracting for additional surface water from the Guadalupe River.
2. Evaluate (or reevaluate) potential use of off-channel surface storage to allow capture of surface water during periods of high river flows for subsequent direct use or for Aquifer Storage Recovery (ASR). Ability to capture and

store raw water in an off-channel surface impoundment would not be limited by the capacity of the water treatment plant or the ASR injection rate.

3. Revise TNRCC surface water permits to allow higher diversion rates in off-peak demand months when stream flows are greater could increase the benefits of ASR, particularly during drought conditions.
4. Development of wells in remote locations (availability of ground water in such areas would need to be determined).
5. Water conservation practices can extend the use of existing supplies.

TRACKING METHODOLOGY

The Headwaters Underground Water Conservation District’s manager will provide a report of staff activities to the District Board of Directors on a monthly or annual basis to insure management objectives and goals are being achieved.

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MANAGEMENT GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS

Goal 1.0 Provide for Most Efficient Use of Groundwater.

Management Objective

1.1 *Develop a drought and a conservation plan for the District by 9/1/01.*

Performance Standards

- 1.1a. Request, by 6/1/01, from the Texas Natural Resources Conservation Commission (“TNRCC”) all conditions that may require suspension of withdrawal rights from the Guadalupe River and the mechanism for implementation of these orders.
- 1.1b. By 8/1/01, establish the conditions (triggers) pursuant to which the District's drought and conservation plan will be implemented.
- 1.1c. Adopt a drought and a conservation plan by 9/1/01.
- 1.1d. Prepare and provide minimum standards for the preparation of the drought and the conservation plans for all major water users and providers within the District by 10/1/01. These standards shall be reviewed and updated as necessary, but not less than once every three years thereafter.

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Management Objective

1.2 *Implement a program to improve the understanding of usable groundwater supplies in the District by 12/1/99.*

Performance Standards

- 1.2a. Implement a program to conduct periodic sampling and water analysis in monitor wells to detect changes in water quality by 10/1/98.
- 1.2b. Report water levels in all monitor wells, highlighting trends for further investigation on a quarterly basis to the District Directors by 10/1/98.
- 1.2c. Report the trend in groundwater quality on a semi-annual basis to the District Directors, commencing 4/1/99.

Management Objective

1.3 *Implement a program to regulate groundwater withdrawals by 9/1/04.*

Performance Standard

1.3a. Begin work on developing and implementing a production limitation and well spacing plan by 9/1/03.

Management Objective

1.4 *Provide for a regular review of the District Rules by 6/12/00.*

Performance Standards

1.4a. Review and revise, as needed, the District Rules of 6/12/96 by 6/12/00 and review biannually thereafter to provide for the most efficient use of groundwater.

Goal 2.0 Control and Prevent Waste of Groundwater

Management Objective

2.1 *Identify two wasteful water practices in Kerr County to include causes and contributors each year beginning 1/0/00.*

Performance Standards

2.1a. Submit a report to the District Board each year with the number of wasteful water practices identified in Kerr County beginning in year 2000.

Goal 3.0 Control and Prevent Subsidence.

The rigid geologic framework of the region precludes significant subsidence from occurring.

This goal is not applicable to the operation of the District.

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Goal 4.0 Address Conjunctive Surface Water Management Issues.

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Management Objective

4.1 *Have the District Board meet each year with representatives of the City of Kerrville and UGRA at least once to discuss the most efficient conjunctive use of the water resources within the District beginning in the year 2000.*

Performance Standard

4.1a. The number of meetings conducted by the District Board and representatives from the City of Kerrville and UGRA in the year 2000, and each year thereafter.

Management Objective

4.2 *Submit a grant request by 12/31/99 for the preparation of a ground/surface water modeling program for the District.*

Performance Standard

4.2a. The number of grant requests submitted by 12/31/99.

Goal 5.0 Address natural resource issues* which are impacted by the use of groundwater in the District.

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Management Objective

5.1 *Implement a program to monitor 2 major springs for common water quality indicators and spring flow in order to assess impacts to the groundwater from the Edwards-Trinity Aquifer each year after 1/01/04.*

Performance Standard

5.1a. The number of major springs monitored for common water quality indicators and spring flow in the year 2004, and each year thereafter.
5.1b. Submit an analysis of the monitoring program in a report to the District each year beginning in the year 2004.

***The groundwater in the Edwards Trinity discharges as springs that result in the headwaters of the Guadalupe River.**

Management Objective

5.2 *Identify an applicable management practice and strategy that would enhance/protect water quality and quantity from springs (and groundwater) of the Edwards-Trinity Aquifer by 12/31/04.*

Performance Standard

5.2a. Submit a report to the District Board by 12/31/04 with the number of applicable management practices and strategies identified.

CERTIFIED COPY OF RESOLUTION
BY BOARD OF DIRECTORS

I, Susan Sander, do hereby certify that I am the Secretary and official custodian of certain records including the Minutes of the Meetings of the Board of Directors of the Headwaters Underground Water Conservation District, a water conservation district duly organized and existing under the laws of the State of Texas (the "District"), that the following is a true, accurate and compared transcript of a Resolution adopted at a Meeting of the Board of Directors of said District duly held on the 12th day of August, 1998, at which meeting there was present and acting throughout a quorum authorized to transact the business hereafter described, that the proceedings of said meetings were, and said Resolution is, in accordance with the Bylaws of said District, and that the said Resolution has not been amended nor revoked and is in full force and effect.

RESOLUTION ADOPTING A WATER MANAGEMENT PLAN
FOR THE HEADWATERS UNDERGROUND WATER
CONSERVATION DISTRICT

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WHEREAS, Senate Bill No. 1 enacted by the 75th Texas Legislature mandated that all underground water conservation districts adopt a comprehensive water management plan for their respective district; and

WHEREAS, the Headwaters Underground Water Conservation District (the "District") conducted, after proper notice, a public hearing on July 8, 1998, concerning the proposed plan for the District; and

WHEREAS, the District, following notice and hearing, coordinated the development of the plan with surface water management entities located within the District; and

WHEREAS, the Board of Directors of the District desires to formally adopt the attached water management plan for the District:

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Headwaters Underground Water Conservation District does hereby:

1. Adopt the attached water management plan as the water management plan for the District as mandated by Senate Bill No. 1;

2. Direct the Administrator of the District to forward a copy of the adopted water management plan to the Texas Water Development Board for its review and approval, along with such other documents or certificate as may be required by the Texas Water Development Board.

NOW, THEREFORE, BE IT FURTHER RESOLVED that this Resolution shall take effect and be in full force and effect immediately upon its passage.

PASSED AND APPROVED this 12th day of August, 1998.

IN WITNESS WHEREOF, I have hereunto set my hand this 12 day of August, 1998.

Susan M. Sander
SUSAN SANDER, Secretary

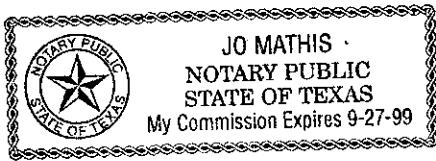
Acknowledgment

State of Texas §

County of Kerr §

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared Susan Sander, Secretary of Headwaters Underground Water Conservation District, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that she executed the same for the purposes and consideration therein expressed, and as the act and deed of said District, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this 12th day of August, 1998.



Jo Mathis
Notary Public, State of Texas

Jo Mathis
Notary's Printed Name
Commission Expires: 9-27-99

2 PUBLIC NOTICE

NOTICE OF PUBLIC MEETING

The Headwaters Underground Water Conservation District (the "District") will hold a Public Meeting on July 8, 1998 at 11:00 a.m., in the Board Room of the Guadalupe Basin Natural Resources Center, 125 Lehmann Drive, Suite 100, Kerrville, Texas 78028.

The purpose of this meeting is for the District to solicit and receive comments and public input on the comprehensive water management plan for the District. The development of this comprehensive water management plan was mandated by Senate Bill No. 1 enacted by the 1997 Texas Legislature.

All persons having an interest in the

development of this comprehensive water management plan are invited to attend. Copies of the draft comprehensive water management plan may be obtained from Mr. J.T. Brown, Administrator of the District, 125 Lehmann Drive, Kerrville, Texas 78028, Telephone 896-4110.

Headwaters Underground Water Conservation District

BOARD OF DIRECTORS REGULAR MEETING

DATE: WEDNESDAY, July 8, 1998
TIME: 8:30 A.M.
PLACE: GUADALUPE BASIN NATURAL RESOURCES CENTER CLASSROOM
125 LEHMANN DRIVE, KERRVILLE, TX 78028

AGENDA

- I. Call to Order and Roll Call.
- II. Public Comments – At this time, any person with business not scheduled on the Agenda may address the Board of Directors. No formal action may be taken on these matters.
- III. Consent Agenda - Approval of Minutes, Treasurer's Report, Administrator's Report, Authorization to Pay Bills, and Reports of Ongoing Activities considered routine by the Board of Directors will be considered as one item and the Minutes, Treasurer's Report, Administrator's Report, and Authorization to Pay Bills will be acted on with one motion. There will be no separate discussion of items unless one or more Director(s) so requests.
- IV. Discussion & Appropriate Action on Citation and Violation of Rule No.3-A, C.A. Drilling Co.
- V. Discussion & Appropriate Action regarding dropping water levels in Kerr County.
- VI. Discussion & Appropriate Action on Matters relating to the Groundwater Survey in Center Point and adjacent areas.
- VII. Discussion & Appropriate Action concerning Identification of the Essential Elements of the Proposed Modeling Program and approval for expenditures.
- VIII. Discussion & Appropriate Action on Matters relating to the appointment of a HUWCD Representative to the Plateau Region Liaison Group.
- IX. Discussion & Appropriate Action on Meeting with Underground Water Districts within a Designated Management Area every two years.
- X. Discussion & Appropriate Action on Matters relating to 1999 Budget and Administrative Services provided by UGRA for HUWCD.
- XI. 11:00 A.M. Public Hearing on District Water Management Plan.

Witnessed 2nd day of July A.D. 19 98
BILLIE G. MEEKER 11:37 am jm
Clerk County Court, Kerr County, Texas
By Cheryl A. Thompson Deputy

- XII. Discussion & Appropriate Action on Development of a District Water Management Plan and Related Plans.
- XIII. Executive Session – If Necessary, the Board May Go Into Executive Session to Discuss Matters Relating to any of the Following:
- Section 551.071 – Consultation with Attorney
 - Section 551.072 – Deliberation Regarding Real Property
 - Section 551.074 – Personnel Matters
 - Section 551.075 – Conference with Employees
- XIV. Return to Open Session – Discussion and Action on Items Referenced Under Executive Session.
- XV. Discussion & Appropriate Action on Director's Requests for Agenda Items for the Next Meeting.
- XVI. Adjournment.

Mr. Henderson reported on his visit with Tom Wells at Schreiner College. Mr. Wells has agreed to provide students as part of their course program for HUWCD data entry needs. Dr. Hammond has offered to provide the necessary information to access TNRIS data. Timing for the project in concert with Schreiner could begin as early as the Fall semester.

Administrator Brown restated that UGRA will purchase ArcView. Mr. Brown also reported that TWDB will look for ModFlo from the Districts, and the money spent on the program will count as a part of the local match contribution they will have to make to the regional planning districts.

There was Board discussion concerning the complexity of ModFlo requirements. ArcView and Pump It will be steps toward the data required for ModFlo. Director Henderson noted that ModFlo will be beyond the scope of what Schreiner students can do in their course work. There was concern over the amount of time required to set up Pump It, and Board members pointed out that staff time involved must be minimal due to budget constraints. The use of Schreiner students will be an important element of the Pump It project.

President Mitchell recessed the regular Board Meeting at 11:05 a.m.

Public Hearing on District Water Management Plan.

President Mitchell called the Public Hearing on District Water Management Plan to order at 11:05 a.m. and called for any public comments.

There were no comments from the public.

Director Henderson made the motion to close the Public Hearing, Director Sander seconded the motion and the motion carried unanimously.

The Public Hearing on District Water management Plan was adjourned at 11:10.

President Mitchell reconvened the Regular Meeting at 11:15 a.m..

Continuation of discussion and appropriate action concerning identification of the essential elements of the proposed modeling program.

Director Mitchell commented that he was in favor of the proposal of acquiring the Pump It program, initiating the project with Professor Wells and Schreiner students' work, with the dedication of minimal staff time of approximately 10 hours per month. Director Henderson agreed that this scenario will allow HUWCD to get started and have the ability to do "what if" projects.

Directors discussed the requirement that the Pump It program can be duplicated.

HUWCD
Kerr County, Texas

Headwaters Underground Water Conservation District

125 Lehmann Drive, Suite 100, Kerrville, TX 78028 Phone: 830-896-4110 Fax: 830-257-2621

July 20, 1998

CERTIFIED MAIL, RETURN RECEIPT REQUESTED

✓ The Honorable Ben Low
Mayor, City of Kerrville
800 Junction Highway
Kerrville, Texas 78028

✓ G. Granger McDonald
President, Board of Directors
Upper Guadalupe River Authority
125 Lehmann Drive, Suite 100
Kerrville, Texas 78028

Regarding: Water Management Plan – Headwaters Underground Water Conservation District

Dear Mayor Low and Mr. McDonald:

Senate Bill No. 1 as enacted by the last Texas legislature mandated that all underground water conservation districts, including the Headwaters Underground Water Conservation District, (hereinafter, the "District"), adopt comprehensive water management plans for their respective districts and submit those plans to the Texas Water Development Board (hereinafter the "T.W.D.B.") for approval by September 1, 1998. Since the enactment of Senate Bill No. 1, the District has worked very hard to develop its comprehensive water management plan. A copy of the latest draft of this plan is enclosed for your review and comment.

Section 36.107(a) of the Texas Water Code and Section 365.6(a)(4) of the Texas Administrative Code require that the District coordinate the development of the comprehensive water management plan with surface water management entities on a regional basis. The City of Kerrville and the Upper Guadalupe River Authority are the only surface water management entities (as defined by the T.W.D.B.) in the geographic area covered by the District.

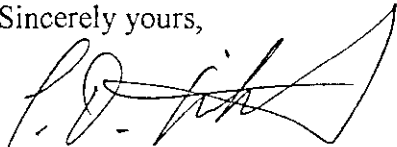
The Honorable Ben Low and Mr. G. Granger McDonald
July 20, 1998

Page 2

Accordingly, request is hereby made that you review the enclosed draft Water Management Plan and provide any comments or questions you might have regarding the plan to Mr. J. T. Brown, Administrator of the District at 125 Lehmann Drive, Suite 100, Kerrville, Texas 78028. Please forward any comments or questions by 5:00 P.M. on August 10, 1998 for consideration at the August 12 meeting of the District Board of Directors.

Thank you for your attention and cooperation.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'D. Mitchell', written over a horizontal line.

Dean Mitchell, President
Board of Directors
Headwaters Underground Water Conservation District

CM/jm

Enclosure

Cc: J. T. Brown, Administrator

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- 1. Addressee's Address
- 2. Restricted Delivery

Consult postmaster for fee:

3. Article Addressed to:
 Mr. G. Granger McDonald
 President, Board of Directors
 Upper Guadalupe River
 Authority
 125 Lehmann Drive, Suite 100
 Kerrville, TX 78028

4a. Article Number
 P 562 855 882

4b. Service Type
 Registered Certified
 Express Mail Insured
 Return Receipt for Merchandise COD

7. Date of Delivery
 7-23-98

5. Received By: (Print Name)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)
 X *Kelly Brown*

PS Form 3811, December 1994

102595-97-8-0179

Domestic Return Receipt

Thank you for using Return Receipt Service.

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- 1. Addressee's Address
- 2. Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
 The Honorable Ben Low
 Mayor, City of Kerrville
 800 Junction Highway
 Kerrville, TX 78028

4a. Article Number
 P 562 855 883

4b. Service Type
 Registered Certified
 Express Mail Insured
 Return Receipt for Merchandise COD

7. Date of Delivery
 JUL 23 1998

5. Received By: (Print Name)
 J Ritchie

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)
 X *J Ritchie*

PS Form 3811, December 1994

102595-97-8-0179

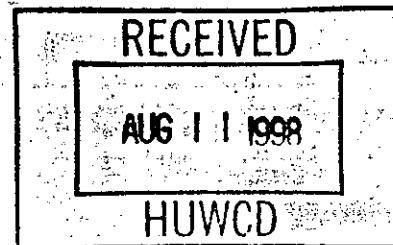
Domestic Return Receipt

Thank you for using Return Receipt Service.



THE CITY OF

KERRVILLE, TEXAS



August 4, 1998

Dean Mitchell, President
Headwaters Underground Water Conservation District
125 Lehmann Dr., Suite 100
Kerrville, Texas 78028

Re: Water Management Plan

Dear Mr. Mitchell

The city of Kerrville appreciates the efforts of HUWCD to conserve and protect the underground water resources in Kerr County. As you and your board are aware the city is dependant on our supply of groundwater from the Halston-Sligo formation to supplement our surface water supply, in order to meet the demand of the city and it's service area. Without this underground supply we could not meet the existing or projected demand for drinking water, and therefore we support your efforts to protect this resource.

The city has developed a conjunctive water use program which we think will protect and maximize the availability of both surface and underground water. In addition we have placed the ASR system into operation this year and we expect to see the benefits from that program in aquifer levels. We have a mapping program to monitor the lower Trinity water wells in the city limits and the ETJ area. In addition we are developing a MOD-FLOW computer data base in an effort to track the results of withdrawals in our service area and the impact of our conjunctive use program. We have notified the Region J group that this information is available in support of their efforts to model the Lower Trinity aquifer.

The city will assist the district in any way that we can in order to encourage conjunctive water use by all of the water suppliers in Kerr County. We support your commitment to "adopt rules to regulate groundwater withdrawals by means of well spacing and production limits", and we would like to be involved in developing those rules.

Dean Mitchell
August 4, 1998
Page 2

In the way of comments we would refer to page 4 of your management plan and request that you make a clear distinction between the terminology of "recharge" and "storage". We would suggest the following language here:

Surface water diversion rights in the amount of 1,408 ac-ft per year have been acquired for the purpose of ^{storage} storing ~~treated surface water~~ in the lower Trinity Aquifer for later recovery and municipal use in the Kerrville area. [The District anticipates further research toward the feasibility of expanding ASR projects throughout the District]

On Page 6, paragraph 4: Item number 2: "*the equitable distribution of the resource*" should include recognition for conjunctive use of surface and groundwater. Our suggested wording is "*the equitable distribution of the resource, recognizing those communities that have successfully implemented conjunctive use of surface water and groundwater in order to reduce their overall dependence on the groundwater resources.*"

On Page 9, Section 1.2: In our opinion, the District should acquire the use of or ownership of sufficient monitor wells in the county to accurately report water level trends. We hope that the District's Number 1 management objective will be to establish regular monitor wells, not production wells, to gather water level data in the various strata. These monitor wells should be fitted with data loggers to record level changes in real time.

Sincerely,



Glenn Brown
City Manager

cc: J. T. Brown, General Manager
UGRA