

BRAZOS MUTUAL DOMESTIC WATER CONSUMERS ASSOCIATION, INC.
1521 Cerro Vista Rd. S.W.
Albuquerque, NM 87105-3005
(505) 247-4669

August 12, 2001

Office of the State Engineer
Bataan Memorial Building, Room 101
Post Office Box 25102
Santa Fe, New Mexico 87504-5102

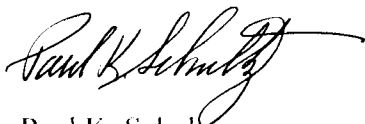
Attention: Mr. Stermon M. Wells
Water Rights Division

Dear Mr. Wells,

In accordance with the direction of the Water Rights Division of the Office of the State Engineer, provided by you, please find attached a full Water Development Plan for the Brazos Mutual Domestic Water Consumers Association, Inc. This Water Development Plan covers the time period 2000 through 2040. It is anticipated that this Water Development Plan will be accepted and approved by the Office of the State Engineer. It is further anticipated that following the acceptance and approval by the Office of the State Engineer, that the 97 acre feet of water rights that is now held by the Brazos MDWCA on a conditional basis, will be approved for permanent ownership by the Brazos MDWCA.

Therefore, it is requested that the Office of the State Engineer review and approve the attached Water Development Plan. The Board of Directors of the Brazos MDWCA stands by to answer any questions or respond to any comments from your office.

Sincerely,



Paul K. Schultz
President,
Board of Directors

Attachment: as stated

**BRAZOS MUTUAL DOMESTIC WATER CONSUMERS
ASSOCIATION, INC.**

**WATER DEVELOPMENT PLAN
FOR THE TIME PERIOD
YEAR 2001 THROUGH YEAR 2041**

1. Background Information about the Brazos MDWCA

The Brazos Mutual Domestic Water Consumers Association, Inc. is located in northern Rio Arriba County, in the State of New Mexico. The Cooperative acquires, stores, and distributes daily household (domestic) water to 157 memberships. All of the members are tax payers in Rio Arriba County. The business address of the Cooperative is that of our bookkeeper/financial accountant and is shown as;

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The Brazos Mutual Domestic Water Consumers Association, Inc. is an outgrowth of The Brazos Water Cooperative Association, Inc. which was incorporated in December 1962, with 14 members. The Association has grown to 157 memberships. The map of the Brazos MDWCA service area is shown as an attachment to this plan. In October 1999 the Association was reorganized as The Brazos Mutual Domestic Water Consumers Association, Inc. under the provisions of the Sanitary Projects Act, New Mexico statute 3-29-1 to 3-29-19 NMSA 1978. During the 1960's, the membership's water usage was mainly seasonal, however in the more recent years members have moved to the area as full time residents. The memberships now include both domestic and commercial accounts (Bed & Breakfast, Tourist Lodge, and a Restaurant) that operate year around. From 1990 to 2000, this upper Brazos canyon area has realized a tremendous growth in both membership and new construction of homes for year around habitation.

In 1990, the Association was granted a loan from the New Mexico Rural Infra-Structure Program, to replace our underground water distribution system. The old galvanized pipe system was replaced with P.V.C. piping. This action increased the ability of the Association to service the members, while also greatly reducing the lost water due to distribution line leakage.

In 2000, the Association was granted a loan from the New Mexico Rural Infra-Structure Program, as well as grant monies from the NM Legislature, to install an additional water storage tank. This requirement for additional stored water was derived from the increased peak water service demand from the members. The increased peak demand is a direct result of strong, but subtle growth in the service area of the Association.

The Brazos MDWCA owns 97 acre feet of water rights under the designation RG-24272, et. al. The applicable documents are on file with the New Mexico Office of the State Engineer, Water Rights Division.

The Association underwent a Sanitary Survey by the New Mexico Environment Department in May 2000. A copy of the Sanitary Survey is attached to this plan.

2. Summary of the Brazos MDWCA's existing water rights and water use.

The type of water rights that are held by the Brazos MDWCA are Declared Rights. Our water sources consist of surface water from one coffer dam and ground water from two wells. (All sources are shown on the attached map).

The number of acre-feet of water that the Association claims is 97 acre feet per year. The number of acre feet that we have diverted over the last five years exceeds 15 acre-feet per year based on meter readings. These meter readings have been delivered to the New Mexico Office of the State Engineer on a monthly basis. The number of acre feet that we have delivered for beneficial use to customers over the same time period is approximately 13.5 acre-feet plus an estimated 10% loss through leak in the underground distribution system.

Since 1990, with the new underground infra structure in place and few leaks in our main lines, all but about 10% has been billed to customers, although there have been incidents of water distribution and supply line breaks that have caused large amounts of stored water to be lost.

The place where the water will be used over the next 40 years is within the existing service area as shown in the attached service area maps. The purpose of the diverted water is for domestic use. All commercial accounts of the Association utilize their water for domestic use within the context of their commercial establishments.

Our primary goal is to supply safe, good tasting, quality water to our current and future members. As it has been previously stated we have seen a strong but subtle growth increase in construction of full time year around homes in this area. The Association has several adjacent small water systems that have expressed a long term interest in joining our Association, because of the additional purification and testing requirements of the Safe Water Drinking Act (SDWA) of 1986. These small water systems are commercial lodges and rentals to the public that soon will be in a position to require compliance with the SDWA.

3. Description of water rights now owned by the Brazos MDWCA.

The 97 acre feet per year water right are owned by the Brazos MDWCA. The Association does not lease water from any other sources.

The estimated number of domestic wells in use within the Association's present and future service area in the upper Brazos canyon area is approximately 25 wells. Of these 25 wells, 6 wells which are permitted, are owned by members of the Brazos MDWCA. These members use their wells for lawn irrigation and non-household use.

Due to the mountainous terrain, agriculture irrigation does not exist and therefore is not a factor.

The estimated amount of water used by domestic type wells for commercial and industrial entities within the current and planned service area is approximately 983,820 gal per year. With the anticipated growth in this area of lodges and rental cabins this usage is expected to increase.

4. Population Projections.

The average annual population growth in the current and planned service area over the last 10 years is approximately 12 new residences per year, with a large up swing in the rate over the past five years.

The Association acquired population data from the University of New Mexico data bank. These data contained the past and future population projections for Rio Arriba county. The following data table shows a large population growth in recent years and in the future 40 years.

1980---29,282
1990---34,504
2000---38,531

A small growth rate: 6.

2010---41,201
2020---43,823
2030---45,794
2040---50,373

Additional population data were acquired from Rio Arriba County Library system. Rio Arriba county is sparsely populated, however, certain areas of the county have become attractive to people that want to leave the big city environment or to those citizens retiring from active employment. The upper Brazos canyon area is in the heart of a summer and winter playground with an anticipated growth rate higher than that of Rio Arriba county overall. The prior stated growth rate for the county would be considered a small growth rate in comparison with the anticipated rate of growth of the service area that the Brazos MDWCA. These are the data provided by the Rio Arriba County Library Research service.

A moderate growth rate: 13.

Year 2010---43,155
Year 2020---48,765
Year 2030---55,110
Year 2040---62,263

A high growth rate: 15.

Year 2010---43,907
Year 2020---50,493
Year 2030---58,067
Year 2040---66,777

5. Existing and planned water conservation measures.

The Brazos MDWCA, in an effort to conserve water, allows water for domestic use only. The Rules and Regulations of the Association do not allow use of water for the following activities:

- a. Washing of vehicles or equipment
- b. Irrigation of lawns, trees, and shrubs

c. Purposeful wasting of water

Violators of these Rules and Regulations are subject to fines and if critical enough and constantly repeated, are subject to being expelled from the Association.

When the Association accepts a new member, that member is supplied a laminated notice which is to be placed in the bathroom of the residence. This posted notice urges the member and their guests to conserve water by taking shorter showers and flushing the toilet less times each day. See an example of this laminated card in the attachments to this plan.

The Association also has in place a graduated rate structure for water usage. That is we allow a basic amount of water usage without a surcharge, but beyond the basic allowance, the member must pay for additional water usage by the gallon. These rates are published in the Association Rules and Regulations. The Association also recommends installation of low flow lavatory fixtures, low flow shower heads, and water fixtures.

The Association is currently in the process of purchasing an underground leak detection system to aid in finding and correcting water leaks. We have a local contractor who answers any service calls for leaks in the distribution system or on a member's private property. Any illegal hook-ups are detected by our System Administrator who lives in the community and is a State of New Mexico certified small water system operator.

6. Per capita water use and comparison with other similar water appropriators.

The calculation of Gallons per Capita per Day (GPCD) is based on the number of members and their household populations and the amount of water pumped from the wells or drawn from the surface water collection gallery. The reference data for these calculations are: the volume of an acre-foot is 43,560 cubic feet, and one cubic foot of water equals 7.5 gallons, therefore, one acre-foot of water is 326,700 gallons.

A. The present Gallons Per Capita per Day diverted is:

15 acre-feet X 326,700 gals/acre-feet = 4,900,500 gallons

4,900,500 gallons / 365 days = 13,426 gallons per day

158 member households @ 3.25 persons per household = 514 persons

13,426 gallons per day / 514 persons = 26.12 GPCD

B. The Gallons Per Capita per Day water use delivered is (less 10% lost water):

13.5 acre-feet X 326,700 gals/acre-feet = 4,410,450 gal

4,410,450 gallons / 365 days = 12,083 gallons per day

158 member households @ 3.25 persons per household = 514 persons

12,083 gallons per day / 514 persons = 23.51 GPCD

The Association's GPCD of diverted water of 26.12 GPCD, is much lower than that of the NM Office of the State Engineer's guideline of 60 GPCD. However as previously stated, the Association's service area is experiencing a great change with the addition of more full time residences.

The State Engineers guideline of 60 GPCD for northern New Mexico residence is very low when compared to the GPCD for the City of Albuquerque which is in excess of 225 GPCD.

7. Projected water demand over the next 40 years.

The Brazos Lodge Estates subdivision, located in the upper Brazos canyon, consists of:

490 residential and commercial lots
157 currently have Association memberships
333 lots not developed

In addition to our existing service area, there is an adjoining area within the Brazos Lodge Estates plat into which we have not expanded. This area has one 10 acre tract, plus another 44 lots, which are not accounted for, nor addressed in the projections developed in this plan.

With the anticipation that all 490 lots will be developed in the next 40 years, and using the NM Office of the State Engineer's GPCD guideline;

490 memberships X 3.25 persons per member household = 1592 persons

1592 persons X 60 gallons per day = 95,520 gallons per day

95,520 gallons per day X 365 days = 34,864,800 gallons per year

34,864,800 gallons per year / 326,700 gallons per acre foot =
106.72 acre-feet per year

As can be seen, when all the available properties are developed in the Brazos Lodge Estates, the required water rights will exceed those presently held by the Association.

The 40 year projected increase in water usage shown below is based on several factors which are occurring within the Association service area:

A. Growth within the Brazos Lodge Estates subdivision

B. Anticipated increase in commercial accounts with a larger GPDC than that of the domestic members; such as, Bed & Breakfast facilities, Condominiums, Lodges, and Restaurants

C. The addition of new residential developments in the adjoining areas which will look to the Brazos MDWCA for domestic water service.

D. New rulings by the E.P.A. and NM Environment Department which will make it harder for small domestic water systems to comply with the SDWA, which then results in pressure for the adjacent small water systems to join and expand the service area of the Brazos MDWCA.

The projected water demand over the next 40 years, which includes the commercial membership, is estimated at an average increment of 2 acre-feet per year, with a step increase of 10% for each 10 year period. Therefore the forecast water usage for Brazos MDWCA for the existing service area is as follows:

Year 2000	15	acre-feet
Year 2005	25	acre-feet
Year 2010	35	acre-feet
Year 2015	45	acre-feet
Year 2020	58	acre-feet
Year 2025	74	acre-feet
Year 2030	84	acre-feet
Year 2035	102	acre-feet
Year 2040	112	acre-feet

From this projection, it can be seen that the Brazos MDWCA will

exceed the allocated water rights of 97 acre feet by the year 2035.

REFERENCES:

1. WATER CONSERVATION AND QUANTIFICATION OF WATER DEMANDS IN SUBDIVISIONS PREPARED BY Brian C. Wilson, P.E. State on New Mexico Office of the Engineer
2. UNIVERSITY OF NEW MEXICO DATA BANK. New Mexico State Population Projections.
3. RIO ARRIBA COUNTY SERVICE CENTER. Rio Arriba County Population Projections.
4. A WATER CONSERVATION GUIDE FOR COMMERCIAL, INSTITUTIONAL AND INDUSTRIAL USERS. New Mexico Office of the State Engineer.

ATTACHMENTS TO THIS BRAZOS MDWCA WATER DEVELOPMENT PLAN

1. BYLAWS OF THE BRAZOS MDWCA
2. RULES AND REGULATIONS OF THE BRAZOS MDWCA
3. MOST RECENT SANITARY SURVEY OF THE BRAZOS MDWCA BY THE NEW MEXICO ENVIRONMENT DEPARTMENT DATED MAY 2000
4. SERVICE AREA MAP OF THE BRAZOS MDWCA
5. LAMINATED WATER CONSERVATION CARD FOR ALL MEMBERS