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Arizona Corporation Commission

DOCKETED

FEB 13 2014

BEFORE THE ARIZONA CORPORATION COMMISSION

AZ CORP COMMISSION

ORIGINAL

DOCKETED BY

IN THE MATTER OF THE APPLICATION OF ) DOCKET NO. W-02467A-09-0333  
 GRANITE MOUNTAIN WATER COMPANY, INC. )  
 FOR APPROVAL OF A RATE INCREASE. )

IN THE MATTER OF THE APPLICATION OF ) DOCKET NO. W-02467A-09-0334  
 GRANITE MOUNTAIN WATER COMPANY, INC. )  
 FOR APPROVAL OF FINANCINGS. )

IN THE MATTER OF THE APPLICATION OF ) DOCKET NO. W-02467A-10-0483  
 GRANITE MOUNTAIN WATER COMPANY, INC. )  
 FOR AUTHORITY TO INCUR LONG-TERM )  
 DEBT. )

**SECOND RESPONSE TO PROCEDURAL ORDER**

Granite Mountain Water Company ("GMWC") received the response from State of Arizona Department of Water Resources to its application to convert its Well #6 Short Spur ID #55-210719 from an exempt status well to non-exempt status well. ADWR'S decision was to give GMWC the non-exempt status that we were applying for, but at a reduced maximum annual volume of water, 30 acre feet per year. "GMWC" had applied for 56.45 maximum annual acre feet per year.

After finding out this information "GMWC" contacted William Carnes at BC Engineering the same engineering firm that made the design report for "GMWC" and fire flow and it was determined that "GMWC" would still meet the required water production and fire flow at the reduced volume of water for Well #6.

The 30 acres feet per year volume equals 18.6 gallons per minute of water production.

"GMWC" had BC Engineering redesign there water supply and fire flow design report using the new 18.6 gpm of production from Well #6 (see attached). BC Engineering's report states that "GMWC" already has more than the required 60,000 gallons of water storage capacity that "GMWC"

1 "GMWC" is asking the Arizona Corporate Commission Staff to look at the  
2 new engineering report and confirm that by adding the new well #6 at the reduced  
3 rate of water production (18.6) and adding the additional 50,000 gallon water storage  
4 tank to the two existing tanks on the hill (112,667) total, still meets the additional  
5 water production and fire flow requirements from Arizona Corporate Commission.  
6  
7

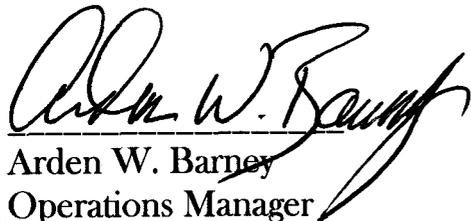
8 RESPECTFULLY SUBMITTED this 13th day of February, 2014

9 

10 \_\_\_\_\_  
11 Paul D. Levie  
12 Attorney for Granite Mountain  
13 Water Company, Inc.

14 Original and 13 copies filed on  
15 The 13<sup>th</sup> day of February, 2014, with:

16 Docket Control  
17 Arizona Corporation Commission  
18 1200 West Washington  
19 Phoenix, AZ 85007

20   
21 \_\_\_\_\_  
22 Arden W. Barney  
23 Operations Manager  
24  
25

# **WATER SUPPLY AND FIRE FLOW DESIGN REPORT**

**FOR**

# **GRANITE MOUNTAIN WATER COMPANY**

**GRANITE MOUNTAIN WATER COMPANY**

**P.O. BOX 350**

**CHINO VALLEY, AZ 86323**

**928-776-9641**

**CONTACT PERSON: ARDEN BARNEY**

**REPORT PREPARED BY:**

**BC ENGINEERING**

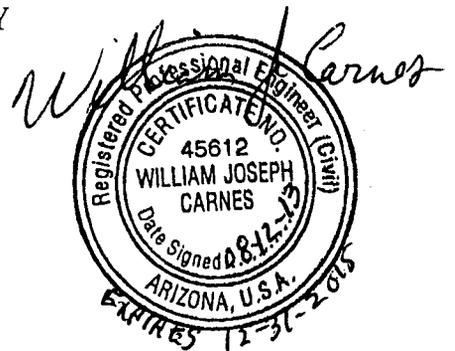
**212 S. MARINA STREET**

**PRESCOTT, AZ 86303**

**928-899-8772**

**CONTACT PERSON: WILLIAM J CARNES**

**August 12, 2013**



## **INTRODUCTION**

This report is to calculate and verify the water usage demand and the fire flow demand for the GRANITE MOUNTAIN WATER COMPANY in Prescott, Arizona. The GRANITE MOUNTAIN WATER COMPANY serves the GRANITE MOUNTAIN HOMESITES SUBDIVISION located northwest of Prescott on Williamson Valley Road.

Currently, there are 123 lots being served by the water company. At total build-out, there will be 175 lots being served by the water company. With a design capita of 2.5 persons per lot, that equates to 438 people will be served by the water company at total build-out.

Presently, there are two wells, well #3 and well #4, supplying water for the water company with construction plans being submitted for a third well to be added for water production for the company. There are currently two storage tanks serving the water company. One of 50,000 gallons capacity and the other with 12,667 gallons capacity, making a total storage capacity of 62,667 gallons storage.

## **WATER DEMAND FOR WATER DISTRICT**

As stated above, at total build-out, the water district will have 175 lots being served by the water company. Historic water usage data collected for the water district for the year of 2012 for the presently occupied 123 lots gives the average daily usage of 27,992 gallons per day for the 123 lots. This gives an average monthly water usage of:

$$27,992 \text{ gal/day for 123 lots} \times 31 \text{ days/month} = 867,752 \text{ gal/month for 123 lots.}$$

For total build-out of 175 lots, this would give a average daily usage of:

$$27,992 \text{ average gal/day for 123 lots} \times 175 \text{ lots} / 123 \text{ lots} = 39,826 \text{ gal/day for 175 lots}$$

This would give an average monthly usage for total build-out of 175 lots of:

$$39,826 \text{ gal/day for 175 lots} \times 31 \text{ days/month} = 1,234,607 \text{ gal/month for 175 lots.}$$

Now, we have to convert this average monthly water usage to an average daily usage for each lot. The calculation for this would be:

$$1,234,607 \text{ average gal/month} \div (31 \text{ days/month} \times 175 \text{ lots}) = 228 \text{ gpd/lot average daily usage}$$

This historic calculated water data for the year of 2012 will be used to calculate the daily demand factors for the water district at total build-out. Therefore, at total build-out, the water demand for the district will be:

### **AVERAGE DAILY DEMAND**

$$175 \text{ lots} \times 228 \text{ gpd/lot} = 39,826 \text{ gallons per day water demand or 28 gpm}$$

### **MAXIMUM DAILY DEMAND**

$$1.8 \times \text{average daily demand} = 1.8 \times 39,826 \text{ gallons} = 71,687 \text{ gallons per day}$$

or 50 gpm

## **PEAK HOURLY DEMAND**

1.7 x maximum daily demand = 1.7 x 71,687 gallons = 121,868 gallons per day  
or 85 gpm

## **WATER SUPPLY FOR WATER DISTRICT**

As stated above, the water company has two wells, well #3 and well #4, that currently supply water for the water district, and a third proposed well, well #6 that will be added shortly to supply water for the water district. The quantity of water that each well can produce is:

Well #3 produces	22 gpm	or	31,680 gallons per day
Well #4 produces	60 gpm	or	86,400 gallons per day
Well #6 will produce	18.6 gpm	or	26,784 gallons per day

Water from the wells is pumped to two existing storage tanks, one of 50,000 gallons storage capacity and one of 12,667 gallons storage capacity. Water is supplied throughout the water district through a 2,000 gallon hydroneumatic tank and two 15 hp booster pumps, each having a pumping capacity of 250 gpm.

## **OPERATIONAL STORAGE REQUIREMENTS**

Operational storage requirements for the water district are based on the water demand at total build-out of 175 lots which has, as calculated above, the average daily demand of 39,826 gallons per day. The current storage capacity of the water system is 62,667 gallons with the two existing storage tanks. This is greater than the average daily demand of 39,826 gallons, so therefore the operational daily storage requirements are met.

Fire flow storage requirements are based on the approved fire flows and fire suppression systems required for the lots at the time the various units of Granite Mountain Homesites were platted and approved by Yavapai County. The required fire flow for these platted units of Granite Mountain Homesites is 500 gpm for a duration of 2 hours which is equal to 60,000 gallons. Along with this required fire flow of 500 gpm is a note called "Fire Suppression" on the cover of the plats that states each home within the subdivision will be built with fire sprinklers or other approved fire suppression system. These two fire suppression requirements were a condition of the approval for each platted unit of Granite Mountain Homesites with Yavapai County and is stated as a part of the Department of Real Estate Public Report that is filed with each plat.

**Also, in contacting the Central Yavapai Fire District fire marshal, the current fire code used by the fire district for the Granite Mountain Homesites subdivision is stated thusly:**

**B105.1 One and Two family dwellings: The minimum fire flow and flow duration requirements for one and two family dwellings having a fire flow calculation area which does not exceed 3,600 square feet shall be 1,000 gallons per minute for 1 hour. A reduction in required fire flow of 50 percent, as approved, is allowed when the building is provided with an approved automatic sprinkler system. A letter from the Central Yavapai Fire District fire marshal stating the fire flow requirements is enclosed with this report.**

Therefore, fire flow storage requirements for the water district are:

$$1000 \text{ gpm} \times 60 \text{ minutes duration} = 60,000 \text{ gallons}$$

The storage capacity of the two existing storage tanks is 62,667 gallons, which is greater than the required fire flow storage of 60,000 gallons, therefore the fire storage capacity for the water system is met.

## CONCLUSIONS AND RECOMMENDATIONS

Granite Mountain Water Company is putting into service a third high production well for their water district, and construction plans for the connection of this third well to the subdivision domestic water system are being submitted along with this water report. The three wells will work together or alternate to pump water to the storage tanks. The two storage tanks have a total capacity of 62,667 gallons.

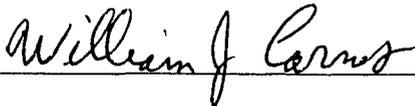
At present, there are 123 lots being served by the water company. At total build-out, there will be 175 lots with service connections to the water company system. At a Granite Mountain Water Company historic water usage demand for each lot of 228 gallons per day, that gives a water demand of  $228 \text{ gpd/lot} \times 175 \text{ lots} = 39,826 \text{ gallons per day}$ . With the existing storage capacity of 62,667 gallons, this is more than the daily demand of 39,826 gallons and provides adequate daily storage capacity.

The fire flow storage capacity requirement for the Granite Mountain Homesite Subdivision is 500 gpm for a duration of 1 hours and that each house built in the subdivision be sprinkled or have another approved fire suppression system as recorded on the approved plat and as stated within the filed Department of Real Estate Public Report. The fire storage capacity requirement is therefore:

$$500 \text{ gpm} \times 60 \text{ minutes} = 30,000 \text{ gallons.}$$

The capacity of the existing two storage tanks is 62,667 gallons, which is greater than the required 30,000 gallons and the fire flow storage capacity requirement is met.

With the addition of a third well, which will nearly double the water production for the Granite Mountain Water Company, and showing, with the above calculations, that the daily demand storage and the fire flow storage is adequate for the subdivision, I recommend that the Granite Mountain Water Company water system is adequate to provide the needed water demand for the subdivision at total build-out. Thank you for your time and effort in the review of this water report and accompanying new well construction plans.



William J Carnes, P.E.