DEPARTMENT OF THE ARMY
US ARMY GARRISON
DIRECTORATE OF PUBLIC WORKS
3040 BUTLER ROAD
FORT HUACHUCA ARIZONA 85613-7010

REPLY TO
ATTENTION OF

Directorate of Public Works

SEP 9 2008

Ms. Melanie L. Ford
Arizona Department of Water Resources
Statewide Water Conservation and
Strategic Planning Division
3550 North Central Avenue
Phoenix, Arizona 85012

Dear Ms. Ford,

The US Army Fort Huachuca Water System, #AZ0402078, is pleased to cooperate with the Arizona Department of Water Resources Statewide Drought Program. I have attached the Fort Huachuca Water Supply Plan, Drought Preparedness Plan, Water Conservation Plan, and a copy of the Annual Water Use Report for 2006. The Annual Water Use Report for calendar year 2007 was submitted electronically to ADWR.

As you are aware, Fort Huachuca is an active Army installation with very sensitive national defense missions. Therefore, force protection concerns prohibit us from releasing Potable Water System details, e.g., maps. You will notice within the attached plans that any sensitive information is on file at the fort.

If you have any questions regarding the enclosed documents, please contact Chris Higgins by e-mail at christopher.p.higgins@us.army.mil or by telephone at (520) 538-0606.

Kimberlee K. Mulhern

Kimberlee K. Mulhern, P.G.
Chief, Environmental and
Natural Resources Division

Enclosures

System Water Plan

Water Supply Plan

Water system name: US Army Garrison / Fort Huachuca
System ID number: 91- 000068.0000

1. Service area lands	
a.	City/town where system is located: Fort Huachuca
b.	County where system is located: Cochise County
c.	Township/range/section where your system is located (if known): Unsurveyed - Boundaries known by Metes and Bounds only
d.	Approximate square miles of service area: Approximately 7 square miles
e.	Describe or submit a map showing the boundaries of your service area (can be streets, town limits, landmarks, etc.). *Note that a map is not required, but may be submitted in place of a description.* On file with the Physical Science Technician (520-538-0606)
f.	Type of area served (consider majority of area served). Please check all that apply: ☒Rural ☒Suburban ☒Urban ☐Mobile home park ☒Subdivision ☐ Prison ☒Other If other, describe area served: Mixed area's served, U.S. Army Garrison
g.	Typical or predominant landscaping type in residential areas: ☒Low water use landscaping ☒Turf ☐Unlandscaped/unirrigated (dirt or natural desert) ☐No outdoor water use (e.g. mobile homes with no yards) ☐Other Additional description if needed: Hand watered turf in back yards, gravel front yards.
h.	Average residential lot size: 1/4 acre

2. Sources of supply

a. Do you serve groundwater?
☒Yes ☐No
If so, do you measure water levels?
☒Yes ☐No

List well registration numbers, most recent water level measurement and date measured (if applicable):

Well registration number	*Water level*	*Date measured*
55-626111	537	3/30/08
55-626112	533.74	7/6/08
55-626110	464.12	7/6/08
55-626109	521.87	8/29/08
55-626108	496	8/29/08
55-626107	559.18	8/29/08
55-626106	344	3/8/08
55-626105	298	5/31/08

(if the number of wells exceeds the space allotted, please continue on a second copy of this page, and attach it for submittal)

b.	Do you serve surface water? ☐Yes ☒No If yes, list name of source(s):
c.	What is your emergency source of water (back-up well number, name of other water provider, etc.)? Potable Water Emergency Response Plan on file with Physical Science Tech. (520-538-0606)
3. Interconnections	
a.	Do you have an interconnection with another water system? ☐Yes ☒No If yes, list name of other system(s):
b.	Describe interconnections, including conditions under which water transfer can take place: N/A ***Systems serving more than 1,850 people must provide a map showing interconnections***
4. Water sold and purchased	
a.	Did you sell water to another water system during the past five years? ☐Yes ☒No If yes, list quantities and systems:
b.	Did you purchase water from another water system during the past five years? ☐Yes ☒No If yes, list quantities and systems:
5. Storage and treatment facilities	
a.	Do you have storage facilities? ☒Yes ☐No If yes, what is your total storage capacity? 5.701 MG
b.	Do you treat your potable water? ☒Yes ☐No If yes, describe treatment facilities/methods: Chlorine/Fluoride
6. Transmission and distribution facilities	
	Describe your system's transmission and distribution facilities: On file with the Physical Science Technician (520-538-0606). ***Systems serving more than 1,850 people must provide a map showing transmission and distribution facilities.***
7. System production	
a.	Is your system metered? ☒Yes ☐No Fill out the table below with the following data. If your system is not metered, fill in as much as you are able to estimate (at a minimum, provide estimates for 2006). *Average daily demand – the average daily demand for each of the indicated years (e.g. five average daily demand numbers – one number for each year).* *Maximum monthly demand – the month of highest demand for each of the indicated years. Please identify the months and the total quantity of water used that month.* *Peak day demand – the day of highest demand for each of the indicated years. Please provide the dates and total quantity of water used that day.*

	Avg. daily demand (gallons)	Max monthly demand (gallons)		Estimated peak day demand (gallons)	
2002	1.360 MG/D	Month:	June	Date:	5/June
		Quantity:	59.60 MG	Quantity:	3.1 MG
2003	1.343 MG/D	Month:	June	Date:	4/June
		Quantity:	57.73 MG	Quantity:	2.6 MG
2004	1.332 MG/D	Month:	June	Date:	22/June
		Quantity:	57.54 MG	Quantity:	2.7 MG
2005	1.167 MG/D	Month:	July	Date:	12/July
		Quantity:	50.06 MG	Quantity:	2.5 MG
2006	1.035 MG/D	Month:	May	Date:	16/May
		Quantity:	38.44 MG	Quantity:	1.5 MG

b. Do you have difficulty meeting demand during times of peak use?
☐Yes ☒No
If yes, describe:
NOTE: Dates and quantity listed under estimated peak day demand are accurate/true numbers.

c. Other important information related to system production and ability to meet current demands:
N/A

8. Analysis of projected water demand

a. Fill in the table below with your projected system population and projected demand.

Year	Projected population	Projected average daily demand on system (gallons)
2012	15,500	1.2 MG
2017	15,500	1.2 MG
2027	15,500	1.2 MG

If you have difficulty estimating your projected population, indicate whether you anticipate your population to increase, decrease, or remain stable for the indicated years. If you have difficulty projecting your average daily demand over the next 20 years, consider your current demand with the addition or subtraction of people and provide your best estimate. Projection calculations may be based on information such as gallons per capita per day, gallons per housing unit per day, number of connections and population, historic or expected demands, land use planning/classification, etc.

b. Explain how you arrived at these numbers:
Army Missions and Noon Time Populations remain relatively stable.

c. Do you anticipate problems meeting these future demands?
☐Yes ☒No

d. Indicate any changes that may be necessary to meet demands over the next 20 years:
(for example, if demand is expected to greatly increase, options could include more advanced conservation programs, increased storage, additional wells, etc.)
Water demands are expected to continue to decrease with water conservation programs.

Water Conservation Plan

Water system name: US Army Garrison / Fort Huachcua
System ID number: 91- 000068.0000

Conservation programs

a. *See fact sheet* Conservation and Drought Planning for Community Water Systems: How do they work together? *for conservation tips and suggestions.*

Check and provide a description for all that apply

Currently imple-menting	Planned in next five years	Conservation measures/programs	Description
☒	☐	Metering of source	N/A
☐	☒	Metering of service connections	
☐	☐	Water rate structures that encourage efficient water use (e.g. higher rates for higher use)	
☒	☐	Measures to limit lost and unaccounted for water (e.g. leak detection and repair programs, control evaporation from storage tanks, eliminate illegal connections)	Very effective water conservation program that has resulted in more than a 50% decline in ground water pumping, derived from eliminating turf, increasing use of reclaimed water, installation of water savings devices such as waterless urinals, low flow showerheads, pressure-assist toilets, low flow faucet aerators, an aggressive water leak repair program and replacement of evaporative coolers with A/C units.
☒	☐	Programs to encourage low water use landscaping (e.g. low water use/drought tolerant plant list for your area, installation of efficient irrigation systems)	Below
☒	☐	Describe any education/outreach programs you are implementing *Please include any communication you have with your customers regarding conservation; this can be as simple as conservation tips provided in water bills. Other examples include school education programs, landscape workshops, water festivals, etc.*	Water Wise Program: under contract with University of Arizona Cooperative Extension program. Provides water and energy conservation support, education, water conservation audits of facilities, and literature to the military, contractor, employees, and family members who either work or live on Fort Huachuca.
☐	☐	Other programs	

b. Describe any planned changes or additions to your current programs over the next five years:

Drought Preparedness Plan
Water system name: US ARMY GARRISON / FORT HUACHUCA
System ID number: 91-000068.0000
ADEQ Public Water System ID: AZ0491-02-078

CONTACT INFORMATION:

Address:	ATTN IMSW-HUA-PWB (MR. HIGGINS) US ARMY GARRISON 3040 BUTLER RD FORT HUACHUCA, AZ 85613-7010
Email:	christopher.p.higgins@us.army.mil
Phone:	520-538-0606
Emergency operations contact	
Name:	Kimberlee K. Mulhern
Phone:	520-533-5215

DROUGHT PLAN OF ACTION

Drought Stage	Management Measures
Stage 0 (normal)	• Provide general education and outreach (bill inserts, pamphlets, workshops) • Meter water use at the source and all connections, ensure meters are working properly, perform water use audits • Limit lost and unaccounted for water (e.g. implement leak detection and repair programs, control evaporation from storage tanks, eliminate illegal connections) • Encourage low water use landscaping (e.g. create a low water use/drought tolerant plant list for your area, encourage installation of efficient irrigation systems) • Evaluate population trends and projected growth to determine future water needs • Communicate conditions, increase outreach • Encourage further reductions or changes related to landscaping (e.g. turf removal, discourage winter overseeding) • Increase system-wide leak detection efforts and expedite repairs • Promote rainwater harvesting • Discourage subdivisions from requiring turf • Encourage restaurants to provide water only upon request • Encourage hotel/motels to implement linen & towel replacement programs
Stage 1 (abnormally dry)	• Monitor water levels of wells, reservoirs more frequently • Require restaurants to provide water only upon request • Require hotel/motels to implement linen & towel replacement programs
Stage 2 (moderate)	• Eliminate outdoor watering; no misters in commercial or public facilities, residential car washing, water used in fountains, or residential pool refills - consider watering trees but allowing shrubs/ grass to die off • Suspend water use of interruptible customers (such as construction water) during peak periods
Stage 3 (severe-extreme)	• Prohibit all public water uses not required for health or safety

IMPLEMENTATION OF DROUGHT STAGES

a) How will you determine when to initiate a drought stage for your system? What factors will be considered?

(Indicators to consider include climate conditions, water supply availability, amount of supply in relation to demand, infrastructure of system, well/reservoir levels, and should most likely involve a combination of more

than one.)

- IMPLEMENTATION OF DROUGHT STAGES ARE HIGHLY UNLIKELY BECAUSE OF THE EXISTING WATER CONSERVATION EFFORTS UNDERTAKEN BY THE ARMY GARRISON AND THE PHYSICAL SIZE OF THE REGIONAL AQUIFER. HOWEVER, IF STATIC WATER LEVELS WERE TO INDICATE NON SEASONAL, CONSECUTIVE AND SIGNIFICANT DECLINES. DROUGHT STAGES WOULD BE IMPLEMENTED.

b) Who has the authority to initiate and/or change a drought stage for your system?

- COMMANDER, US ARMY GARRISON, FORT HUACHUCA.

c) If you chose to make any of your management measures mandatory for your customers, how will you enforce them?

- BY ORDER, FROM THE US ARMY GARRISON COMMANDER.

d) Other important information on implementation of drought stages:

- N/A

CUSTOMER COMMUNICATION

a) Describe how you plan to educate customers on drought conditions and the need for water conservation:

- FORT HUACHUCA PLANS TO CONTINUE IMPLEMENTING ITS VERY EFFECTIVE CONSERVATION PROGRAM AND WILL CONTINUE TO EDUCATE OUR CUSTOMERS WITH PROGRAMS LIKE WATERWISE. TO DATE, FORT HUACHUCA HAS REDUCED GROUND WATER PUMPAGE BY 50%.

b) How will customers be notified of a drought stage declaration and implementation of associated management measures?
Note that different stages of drought may need different notification methods. If the system has reached the point of a water shortage, rapid notification will be necessary.

- COMMANDERS CHANNEL (T.V., RADIO), LOCAL NEWS PAPER AND E-MAIL TO ALL DIRECTORATES AND USERS.

DEVELOPMENT OF EMERGENCY SUPPLIES

a) Describe how you will get water to your customers in an emergency water shortage situation:
Note that it is the community water system's responsibility to have an emergency source of water and an emergency plan in place.

- LONG TERM LOSS OF SERVICE IS CONSIDERED UNLIKELY, THE SYSTEM HAS SUFFICIENT REDUNDANCY TO CONTINUE TO PROVIDE WATER AND LARGE STORAGE CAPACITIES. IN ADDITION, THE GARRISON WILL BE ABLE TO ALLOCATE SUFFICIENT RESOURCES TO INSTALL NEW WELLS, REPAIR AND REPLACE DAMAGED PORTIONS OF THE SYSTEM TO COMPENSATE FOR ANY LOSS OF EXISTING SYSTEM CAPACITY OR WATER SHORTAGES. ADDITIONAL INFORMATION IS ON FILE WITH THE PHYSICAL SCIENCE TECHICIAN, IN THE POTABLE WATER SYSTEM EMERGENCY RESPONSE PLAN.

DROUGHT VULNERABILITY

Question	Suggestion
Do you have existing interconnections to another water	**You answered "no" or "not sure":** Lack of easy access to another source of supply, such as a connection to another water system, may make your system more vulnerable to drought. Water providers that have built relationships with other

supplier?	suppliers in their area generally feel better prepared to face a potential water shortage situation. If you know of another supplier in your area and it is feasible for your system, it may be useful to discuss options for collaboration, such as connecting to one another?s system so that water can be shared in an extreme drought or emergency situation.
Do you have an emergency backup water supply?	**You answered "no" or "not sure":** A backup supply of water is needed so that you are prepared in the event of a water shortage. Such supplies might include external storage tanks, interconnections with other water providers, backup wells, or even hauling water from another supplier.