

CITY OF YUMA  
UTILITIES DEPARTMENT



City of YUMA

*DROUGHT  
PREPAREDNESS  
AND RESPONSE PLAN*

July 2014

# **City of Yuma**

## **Utilities Department**

### **Drought Preparedness and Response Plan**

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#### **Introduction**

Drought is a normal, recurrent feature of climate. It occurs almost everywhere, although its features vary from region to region. In the most general sense, drought originates from a deficiency of precipitation over an extended period of time, resulting in a water shortage for some activity, group, or environmental sector. It is the most complex of all natural hazards, and it affects more people than any other hazard. Analysis shows that it can be as expensive as floods and hurricanes.

Drought in the Lower Sonoran Desert at Yuma has occurred many times in the past and will occur again. Hence, planning for and management during a drought must be an ongoing process. The City of Yuma has planned for drier years through careful management of its water resources.

As part of its efforts to prepare for and manage drought, the City of Yuma has developed this Drought Preparedness and Response Plan which provides a framework for:

- Managing drought conditions when they occur
- Preventing the need to implement drastic water use reduction measures including water rationing
- Planning for future droughts

#### **Background**

It is the goal of the City of Yuma Utilities Department to deliver a cost-effective, adequate, and reliable supply of high quality water to Yuma customers. The majority of the City's water supply is surface water from the Colorado River delivered through the facilities of the Yuma County Water Users Association and the Gila Gravity Canal System. In addition, the water supplied to the rapidly growing eastern portion of Yuma can be augmented with groundwater from the City's Agua Viva well field.

Currently the City has a base allotment of 50,000 acre feet of Colorado River water per year. In addition, to the base allotment, the City has acquired delivery rights to 25,000 additional acre feet of water making an annual water allotment of approximately 75,000 acre feet. The agreement also allows the City to convert agricultural allocations to municipal and industrial uses and to receive return flow credits.

Approximately 35% to 40% of the water produced by the City is returned as wastewater. The City treats its wastewater to near drinking water quality and discharges it to the Colorado River under an Arizona Pollution Discharge Elimination System (AZPDES) permit. In 2008, the City began augmenting reduced Colorado River inflow to the Yuma East Wetlands with spent filter

backwash water. The City receives return flow credits for all water discharged back to the Colorado River.

From an operational perspective, the most effective drought management comes from having adequate well and wellhead treatment capacity to meet water demands when surface water supplies are reduced. The City's Agua Viva Water Treatment Facility currently includes a well field which enables the City to supplement surface water supplies during times of drought or other surface water related emergencies. The City also has a Capital Improvement Project to study and site new ground water wells to further mitigate periods of prolonged drought.

To improve efficiency in metering and promote conservation efforts, the City implemented a Water Meter Replacement Program, testing and replacing meters to maintain the highest amount of meter accuracy with minimal water loss. Additionally, the City moved to phase in Automated Meter Reading (AMR) in 2007 with an expected completion date of 2016. AMR provides for custom reports including high use and leak alerts. Upon full system retrofit, the City will develop an automated electronic high use/leak alert system to send notifications directly to customers for voluntary action. Both of these projects promote water use efficiency and the halting of wasted water loss on an on-going basis at the point of metering. During drought conditions, the customized AMR reports will aid in identifying high users and accounts with chronic leaks for targeted response steps.

Since drought conditions can prevail for extended periods, it may be necessary to initiate water use restrictions. The impact of such restrictions on Yuma's citizens is obvious and significant. In an effort to engage our citizens in the management of water resources, the City of Yuma actively promotes and encourages voluntary water conservation regardless of the amount of water available.

## **Drought Plan**

The City of Yuma's Drought Management Plan is designed to complement its ongoing water resource management and operational planning. It is intended to be a flexible tool for the planning, response and mitigation of drought conditions. Central to the management of drought is the Drought Management Team.

Members of this team include as a minimum:

- The Director of Utilities
- The Utilities Division Manager - Treatment
- The Utilities Division Manager - Systems
- The Water Quality Assurance Supervisor
- Members of the Public Affairs staff
- Members of the Finance staff
- The Assistant City Attorney assigned to Utilities

The Director of Utilities or his representative will monitor drought signals on an ongoing basis and send out information biannually regarding the condition of relevant watersheds to members

of the Team. Upon the recommendation of the Director of Utilities, the City Administrator will activate the Team when a climatological drought occurs or is imminent.

The Team will be responsible for evaluating the severity of the drought and develop an action plan based on current and forecasted water supply and demand, and economic impact to the City.

Drought can vary in both length and severity. Factors typically used to evaluate the drought's impact include:

- Current and projected water supplies
- Current and projected customer demands
- Current and projected water infrastructure
- Volume in upstream surface water reservoirs
- Climate related projections of the magnitude and duration of the drought

Once the evaluation is complete, the Team will report back to the City Administrator. The report will include the following:

- Evaluation of the probable impact on Yuma's water supply
- Evaluation of the probable financial impact of the drought
- Evaluation of the need for and availability of alternative water supplies
- A recommendation regarding demand management
- A recommendation regarding a change in water and/or wastewater rates
- A legal analysis of the recommended actions

The Team will continue to monitor the impending drought and meet at least quarterly throughout the duration of the drought, updating strategies and evaluations as necessary. After the Director of Utilities determines that the drought has passed, the Team will prepare a report detailing the successes and failures of the strategies used during the drought, and develop a recommendation for on-going planning and preparation for the next drought.

Mandatory water use restrictions for Yuma residents and businesses will only be implemented when the City anticipates that it cannot meet its projected demand.

The following criteria will be used when mandatory restrictions are implemented:

- Municipal outside water use restrictions will be implemented prior to mandatory water use restrictions for residents and businesses (for water other than reclaimed water).
- Outside water use reductions will be shared equitably among all City water users: municipal, residential, commercial and industrial (for water other than reclaimed water).
- Water users will be informed of the City's water supply condition.
- Automated Meter Reading (AMR) High Use and Leak Alert Reports will be produced. If available, electronic notices will be sent to those customers indicated. The accounts will be monitored to identify large water users and those with chronic leaks.

- Water use restrictions will be designed to achieve water use reductions required with the least possible impact on the local economy.
- Mandatory water use restrictions will cease when supplies are adequate to meet the following year's projected demands.
- Reclaimed water supplies are not reduced during times of drought; therefore reclaimed water use will not be restricted.
- The City will make every effort necessary to meet the requirements of water quality standards throughout any water supply reduction; however, it is noted that in drought conditions, source water quality degrades in relationship to the volume of water in the river.

## **Drought Stages and Implementation Measures**

There are four stages in this plan. Each stage is based on the severity of water supply conditions and the City's ability to meet the demand of its users. The trigger for Stages Two through Four is based on the percent of actual water delivery reductions. Stage One is triggered when staff predicts that a water delivery reduction may be announced. Yuma has been one of the fastest growing communities in the nation, and as the City continues to experience increasing demands, the percent of water reduction assigned to each stage may vary. Staff will analyze the available water sources and demand for each drought as it occurs. The trigger for each drought stage may be adjusted depending on this analysis. Each stage has measures that will be implemented to ensure the basic water needs of Yuma's water customers are met. The measures below may be interchanged as needed to ensure that Yuma's water needs are met.

### **Stage One Drought**

Upon the recommendation of the Director of Utilities, the City Administrator may declare a Stage One event when a surface water shortage that will affect the City of Yuma is predicted. A reduction in surface water supplies can be predicted several months prior to the actual announcement of a reduction in surface water deliveries. At this stage of the drought, Yuma is capable of meeting demand through available surface water supplies.

The following measures may be implemented in response to a Stage One event:

1. Increased monitoring by Utilities Department staff of surface water availability including water storage levels of the Colorado watershed as well as precipitation and other weather patterns.
2. Reporting by the Director of Utilities to the City Administrator as water supply conditions change.
3. Increased community education regarding water conservation.
4. Encouraging Home Owner Associations, apartment communities, owners and managers of large turf facilities to not overseed in the fall.
5. Encouraging water intensive businesses to conserve water.
6. Encouraging customers to make voluntary repairs to leaks on their systems.

7. Reduction of water use in City facilities, including but not limited to a reduction in hours of operation or water features, and limits on overseeding.

### **Stage Two Drought**

Upon the recommendation of the Director of Utilities, the City Administrator may declare a Stage Two event when deliveries of surface water from the Colorado River are reduced to less than 80% of the water delivered during the most recent non-drought year. At this stage the City of Yuma is capable of meeting demand through its remaining surface water supplies. Voluntary water conservation to reduce demand on existing surface water supplies will be implemented.

In addition to the measures implemented during a Stage One event, one or more of the following demand management measures may be requested of all water customers:

1. Continue to monitor surface water supplies and weather patterns.
2. Reduce water consumption 5% to 10% by eliminating waste, repairing leaks, and eliminating unnecessary outdoor water use.
3. Run lawn sprinklers only between the hours of 7:00 pm and 7:00 am.
4. Turn off decorative water features and outdoor misting systems.
5. Forego overseeding in the fall.
6. Increase cooling tower cycles to three cycles of concentration or higher.
7. Reduce frequency of outdoor watering.
8. Implement mandatory reduction of outdoor municipal water use to compensate for reduced deliveries.
9. Reclaimed water is exempt from restrictions.

Additionally, the City of Yuma may:

1. Intensify its leak detection and repair program.
2. Intensify its meter replacement program.
3. Intensify its AMR leak alerts program.
  - a. Deliver notifications specifically to customers identified on the leak alert reports for voluntary compliance to make repairs.
4. Develop and implement a public awareness program to alert residents to drought conditions, its potential impact to Yuma's water supplies, and that mandatory measures may be imposed if the drought conditions continue.

### **Stage Three Drought**

Upon the recommendation of the Director of Utilities, the City Administrator may declare a Stage Three event when deliveries of surface water from the Colorado River are reduced to less than 60% of the water used during the most recent non-drought year. At this stage, Yuma is capable of meeting demand through its surface water supplies and wells. Stage Three will require implementing mandatory demand management measures to ensure the City's continued ability to meet the need for water.

One or more of the following measures may be implemented in response to a Stage Three event:

1. Continue to monitor surface water supplies and weather patterns.
2. Voluntary water management measures identified in Stage One and Stage Two may become mandatory.
3. Major water users will be identified and required to develop a water conservation plan.
4. Lawn watering will be limited to a published schedule.

Additionally, the City may:

1. Examine commercial and residential development standards and recommend changes that will result in more efficient use of water.
2. Remove turf from public right-of-ways and convert all parks to meet water efficient landscape design standards.
3. Intensify community education efforts.
4. Update the Home Page of the City's intranet and Internet Web Sites to include a drought alert message informing employees and the public of the Stage Three drought. Instructions will be provided for reducing residential water use and a phone number will be provided for residents to call for additional information.
5. Increase staff resources to implement drought response measures.
6. Increase water rates.
7. Deliver Final Notices for mandatory compliance to make repairs specifically to those customers identified on the leak alert report as registering chronic leaks through their meter.
8. Implement civil penalties for wasting water.
9. Intensify efforts to identify and address water theft.

### **Stage Four Drought**

Upon the recommendation of the Director of Utilities, the City Administrator may declare a Stage Four event when water deliveries are insufficient to meet projected water demand. Mandatory customer water use restrictions are implemented in Stage Four to ensure that basic water needs of Yuma residents and businesses will be met.

In addition to the measures implemented in Stages One through Three, one or more of the following measures may be implemented in response to a Stage Four event:

1. Mandatory water use restrictions as follows:
  - a. Lawn watering restricted to once per week. The Director of Utilities shall determine selected watering days for all users of City potable water.
  - b. Tree and shrub watering restricted to once per week. The Director of Utilities shall determine selected watering days for all users of City potable water.



- c. Landscape watering only between the hours of 9:00 pm and 5:00 am or as otherwise directed.
  - d. Prohibit use of all outdoor potable water features.
  - e. Prohibit the use of all outdoor misters.
  - f. Allow auto/truck washing only if pail and hose with shut off nozzle are used or at a commercial facility that recycles water.
  - g. Reclaimed water use exempted from restrictions.
2. Track water demand patterns daily.
  3. Refuse new water connections.
  4. Identify chronic leak accounts still in non-compliance. Issue Notice of Disconnect or Forced Repair/Pay options with deadlines.
  5. Continue to intensify efforts to identify and address water theft.
  6. Introduce drought surcharges based on the severity of the drought. Drought surcharge to be recommended by the City Administrator and approved by the City Council.
  7. Authorize the Water/Wastewater Treatment Manager to purchase additional drought supplies if available.
  8. Restrict overseeding (mandatory for municipal and voluntary for private).
  9. Augment surface water supply with groundwater.
  10. Introduce public awareness messages to inform residents of drought conditions and response measures.
    - a. Distribute news releases in both English and Spanish to local news media.
    - b. Hold media briefings.
    - c. Include drought information in the City utility bills along with a phone number to call for additional information.
    - d. Cable Channel 73 (City television) will air a twenty-second slate on a regular hourly rotation for the duration of a Stage Four drought condition. The slate will include instructions for reducing residential and non-residential water use and a phone number to call for additional information.
    - e. Cable Channel 73 (City television) will air a “news crawl” to run several times a day, at the top of the hour, for the duration of a Stage Four drought condition. The crawl will include instructions for reducing residential and non-residential water use and a phone number to call for additional information.
    - f. The Home Page of the City’s intranet and Internet Web Sites will include a drought alert message informing employees and the public of the Stage Four drought. Instructions will be provided for reducing residential water use and a phone number will be provided for residents to call for additional information.
    - g. The City’s “on-hold” phone recording will inform callers of the drought condition and a phone number to call for additional information.



- h. Display ads a minimum of four column inches in size will be placed in an English language newspaper and a Spanish language newspaper with circulations that cover the City's water service area. The ads shall run once monthly for the duration of the drought condition and include a phone number to call for additional information.

Variances to the water use regulations set forth in this plan may be granted at the discretion of the City Administrator or designee. Applicants for a variance must apply in writing to the Director of Utilities and demonstrate special circumstances such as health and safety needs.