

PEAK DAY - 2013

WATER SUPPLY PLANNING

Introduction

To proactively plan for the 2013 peak water season, Fountain Utilities has assembled a team to evaluate, prioritize, and assess risk associated with various sources of supply. Along with system supply capabilities, the range of potential peak day demands will be quantified based on past usage data and future projections. The scope of this evaluation focuses on water delivery capability directly into the distribution system, and not on related constraints for augmentation water and other water rights.

This plan will also include development of triggers that will aid in decision making related to implementation of water restrictions.

Peak Day Demand Projections

Several factors have influenced water demands over the past several years that have resulted in lower than projected amounts. These factors include:

- Implementation of conservation measures
- Drought Shadow – Voluntary reduction in demand in response to past restrictions
- Weather Conditions

Projected peak day water demand (with conservation) is 10.5 million gallons per day (mgd). Actual peak day demand for the past two years has been 6.3 mgd in 2012 and 5.4 mgd in 2011.

Source of Supply

Supply into the water distribution system comes from the following sources:

- Fountain Valley Authority
- Four Potable Wells
- Venetucci Water Through Interconnections
- Widefield Water

Peak day supply capabilities, from these sources, are summarized in the following table:

Source	Location	Capacity (gpm)	Capacity (mgd)
Fountain Valley Authority (Contracted Amount)	South and North Tanks	1,180 gpm	1.7 mgd
Rice Lane Water (Venetucci)	Rice Lane	2,000 gpm	2.9 mgd
Fountain Valley Authority (Additional Conveyance)	South and North Tanks	1,250 gpm	1.8 mgd

Well Number 1	Santa Fe and Hanover	420 gpm	0.6 mgd
Well Number 2	Alabama and Race	330 gpm	0.5 mgd
Well Number 3	Main and Missouri	350 gpm	0.5 mgd
Well Number 4	Santa Fe and Linda Vista	300 gpm	0.4 mgd
Rice Lane Water (Venetucci)	Rice Lane	135 gpm	0.2 mgd
Vault @ Mesa Ridge (Venetucci)	Mesa Ridge	520 gpm	0.75 mgd
Southmoor Connection (Venetucci)	Southmoor	420 gpm	0.6 mgd
Widefield Water Purchase	Country Club Heights (aka, Thumb Area)	500 gpm	0.7 mgd
	TOTAL	7,270 gpm	10.45 mgd

*Gallons Per Minute (gpm)

The total peak supply amount of 10.45 mgd is adequate to meet the forecasted low and high peak day demand scenarios, assuming that there are not multiple failures of the supply sources. If there are multiple failures of water supply, additional supply from interconnections will be required, or water restrictions will need to be enacted.

Prioritization of Supply Sources

The supply sources in the table above are prioritized as follows:

1. Fountain Valley Authority - Contracted Amount
2. Supplies from Venetucci (Rice Lane, Mesa Ridge, and Southmoor)
3. Fountain Valley Authority – Additional Conveyance
4. Fountain’s Wells (Number 1, 2, 3, and 4)
5. Widefield Water

Treated Water Storage

In addition to the sources of supply, Fountain also has four treated water storage facilities intended to meet peak hour, and fire flow demands. For short durations, a portion of the treated water storage can be depleted to meet peak day demands.

Treated Water Storage Facilities	
Facility	Volume (mg)
Southwest Reservoir	3.0
Fountain Terminal Tank	2.5
Joint Storage Reservoir	2.0
Joint Elevated Tank	.325
TOTAL	7.825

Peak Day Forecast

Given the wide range of values between actual and projected peak day water demands, it is important to evaluate system capabilities for the low (6.0 mgd) and high (10.5) projections.

Long-range forecasts for the summer indicate that temperatures and precipitation are expected to be in the normal range. The 10.5 mgd peak day included water used for construction activities.

Weather forecast in the normal range, coupled with the current economic conditions, will tend to reduce the “risk” of experiencing a peak day at the high of 10.5 mgd value. While the risk is lower, it is not possible to predict with certainty what the actual peak day demand will be. The lower risk may also tend to translate into a shorter duration of peak days, which will allow for the limited ability to meet some of the peak demand through a reduction in treated water storage from one day to the next.

Risk Mitigation

Measures to mitigate risk in planning for, and managing through, peak day demands include the following:

- Close communication and coordination with the Fountain Valley Authority and Colorado Springs Utilities regarding Fountain’s needs to help ensure an outage will not coincide with Fountain’s peak demands.
- Careful management of the wells to ensure they can “rest” when at all possible to ensure full capability for peak day(s).
- Coordination and communication with Widefield and Security to ensure that supply will be available through the interconnections for peak day(s).

Peak Day Pre-Planning

Operations and support staff will begin meeting monthly starting in March to review system capability. The meetings will focus on the following elements:

- Communications – Review of Action Items
- System Capability
- Projects
- Maintenance Activities
- Review of Demand Data
- Prioritization of Sources
- Identify and Assign Action Items

Peak Day Planning

The trigger point to begin meeting weekly, Monday mornings, to discuss peak day planning will be set at 6.0 mgd. These meetings may also be held as needed to address equipment or pipeline failures. Meeting or exceeding this demand will require more frequent communication and coordination. The meeting agenda will be similar to the planning agenda with a couple of additions shown on the following list:

- Communications – Review of Action Items
- System Capability

- Coordination/Communication with other agencies
- Projects
- Maintenance Activities
- Review of Demand Data
- Review Weather Forecast
- Prioritization of Sources
- Risk Discussion
- Identify and Assign Action Items

Peak Day Management

The next important trigger is set at 7 mgd. If peak day demands exceed 7 mgd, meetings will be conducted every morning with the same agenda used for peak day planning to ensure a timely evaluation of daily needs.

When the daily demand exceeds the supply capability by more than 0.5 mgd, for more than one day, then a decision point is triggered related to water restrictions. Operations and support staff will communicate the need to implement voluntary water restrictions to the Utilities Director. The group will work closely with the Director and Community Relations Specialist on communication to customers. The effectiveness of the voluntary restrictions will be reviewed daily and the communication plan will be updated daily until no longer required. The group will communicate the need for additional restrictions to the Utilities Director when necessary.

Long Range Planning

In addition to the focus on this year, the group will be tasked with the development of a tiered approach to water restrictions that will include one or more tiers of mandatory restrictions. The timing of future projects along with demand side management will be considered in the development of multi-year peak day planning.

Water Restrictions

Water Curtailment Plan – Initial Stages

Stage	Trigger Condition	Actions
Stage I	Voluntary – Begins June 1 st	Voluntary Water Restrictions: <ul style="list-style-type: none"> • From June 1 through September 30 property owners and renters whose street address ends in an even number are encouraged to use water outdoors on even numbered calendar days. • From June 1 through September 30 property owners and renters whose street address ends and an odd number are encouraged to use water outdoors on odd numbered calendar days. • Property owners and renters are encouraged not to use water outdoors on the last day of each calendar

		month.
Stage II	When Demand Exceeds 7 mgd	<ul style="list-style-type: none"> • Require construction water to be taken from non-potable wells. • Limit time of day that construction water tanks are filled.
Stage III	Move to Stage III if demand remains above 7 mgd and tank levels are not sustained after Stage I and Stage II actions	<ul style="list-style-type: none"> • City irrigation limited to Monday and Friday • Residential irrigation (even addresses) limited to Sunday and Wednesday. • Residential irrigation (odd addresses) limited to Tuesday and Saturday. • Commercial and industrial irrigation limited to Monday and Friday.

Water Curtailment Plan – Severe Condition Stages

Stage	Trigger Condition	Actions
Stage IV	Move to Stage IV if demand remains above 7 mgd and tank levels are not sustained after Stage III actions	<ul style="list-style-type: none"> • City irrigation limited to Monday and Friday of the 2nd and 4th week of Month. • Residential irrigation (even) limited to Sunday and Wednesday of the 2nd and 4th week of Month. • Residential irrigation (odd) limited to Tuesday and Saturday of the 1st and 3rd week of Month. • Commercial and industrial irrigation limited to Monday and Friday of the 2nd and 4th week of Month. • Restaurants only serve water based on customer request.
Stage V	Move to Stage V if demand remains above 7 mgd and tank levels are not sustained after Stage IV actions	<ul style="list-style-type: none"> • Maintain all Stage IV curtailments plus: <ul style="list-style-type: none"> - No outdoor irrigation - No car washing, pond or pool filling - No sidewalk washing - No use of potable water in water features (fountains)
Stage VI	Move to Stage VI if demand remains above 7 mgd and tank levels are not sustained after Stage V actions	<ul style="list-style-type: none"> • Maintain all Stage V curtailments plus: <ul style="list-style-type: none"> - Allow no new connections to system until fall - Contact largest commercial/industrial customers and meet to develop a plan to reduce inside consumption by 15%