8 Water Shortage Contingency Planning

This section describes the District's Water Shortage Contingency Plan (WSCP) including stages of action, triggering mechanisms, water use prohibitions, penalties, consumption reduction methods, revenue impacts, and catastrophic supply interruption.

In 2015, the District adopted an updated Municipal and Industrial (M&I) Water Shortage Contingency Plan (Resolution 15-04). In 2020, the District began work on an updated Drought Contingency Plan. A revised Drought Contingency Plan was adopted by the District's Board of Directors on February 22, 2021 (Resolution 21-02, Adopting the 2020 Drought Contingency Plan) that included a Water Shortage Contingency Plan that met new State requirements. The new WSCP was made available to the District's customers and can be found in **Appendix I.** There are no new statutory requirements for WSCPs in 2025.

8.1 Stages of Action

Legal Requirements:

CWC 10632
(3) (A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

The stages of action described below are from the 2021 M&I Water Shortage Contingency Plan (**Appendix I**). The goal of the Water Shortage Contingency Plan is to provide a prioritized and orderly staged response depending on shortage severity, and to ensure an adequate supply of water to meet the public health and safety needs of the District customers at all times.

To manage a water supply shortfall, six demand reduction stages have been defined in the District's Water Shortage Contingency Plan. The total demand reduction goal for each stage increases from less than 10 percent to more than 50 percent or more of normal demand from Stage 1 to Stage 6. The stages are summarized in **Table** 8-1. The District defines a water supply shortage as a reduction in its total available water supplies to below its normal water production quantities, either on a long-term (annual) basis or a short-term (daily, weekly, or monthly) basis.

Table 8-1: Stages of Water Shortage Contingency Plan

Stage	Supply Reduction	Water Supply Condition
1	0%-10%	Normal Water Supply (90% to 100% of Normal Water Production)
2	10%-20%	Moderate Water Shortage (80% to 90% of Normal Water Production)
3	20%-30%	Severe Water Shortage (70% to 80% of Normal Water Production)
4	30%-40%	Extreme Water Shortage (60% to 70% of Normal Water Production)
5A	40%-50%	Critical I Water Shortage-Short Term (50% to 60% of Normal Water Production)
5B	40%-50%	Critical I Water Shortage-Long Term (50% to 60% of Normal Water Production)
6A	50+%	Critical II Water Shortage-Short Term (Less than 50% of Normal Water Production)
6B	50+%	Critical II Water Shortage-Long Term (Less than 50% of Normal Water Production)

The declaration of a shortage and the corresponding stage measures are communicated to District customers by way of billing inserts, newspaper advertising, on the District's webpage (www.bvwd.org), and by verbal communication as District staff and personnel interact with the District's customers. If it is deemed necessary to reduce water consumption to ensure that the District has sufficient supplies to meet anticipated demands the District may declare a water shortage emergency pursuant to California Water Code section 350 et seq.

California Water Code section 350 states:

> *"The governing body of a distributor of a public water supply, whether publicly or privately owned and including a mutual water company, shall declare a water shortage emergency condition to prevail within the area served by such distributor whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent that there would be insufficient water for human consumption, sanitation, and fire protection."*

California Water Code section 375(a) states:

> *"Notwithstanding any other law, any public entity that supplies water at retail or wholesale for the benefit of persons within the service area or area of jurisdiction of the public entity may, by ordinance or resolution adopted by a majority of the members of the governing body*

after holding a public hearing upon notice and making appropriate findings of necessity for the adoption of a water conservation program, adopt and enforce a water conservation program to reduce the quantity of water used by those persons for the purpose of conserving the water supplies of the public entity.

Due to the severe reductions in CVP supplies for the 2021-22 water year the District declared a Stage 2 water shortage on March 22, 2021, which included the declaration of a water shortage emergency requiring customers to reduce their demand by at least 10% of their historical (average of their past three years) water usage. All water usage above 90-percent of their historical usage was billed at an overuse penalty rate that is approximately 2.16 times the District's regular water consumption charge.

On June 2, 2021, in response to Reclamation's further reduction their water allocation for the District, the District declared a Stage 3 water shortage requiring all customers to reduce their demand by at least 20% of their historical water usage with usage above that amount subject to the overuse penalty rate.

The District's Policy Manual also includes penalties for the wasteful use of water.

8.2 Demand Reduction Triggering Mechanisms

A water reduction stage is implemented if a water supply shortfall is forecast for the upcoming year. The estimate of the supply shortfall is only a preliminary projection, even as late in the year as the end of February. Although the criteria described in the District's water supply contract will be used to determine District's CVP water allocation, these criteria define District's M&I water supply allocation relative to a period of "historical use."

"Historical use" is defined by the M&I Water Shortage Policy as the average quantity of CVP M&I water put to beneficial use within the service area during the prior three years of water deliveries, unconstrained by the availability of CVP water. The M&I Water Shortage Policy also recognizes that certain circumstances may require adjustment of the historical use such as growth, extraordinary water conservation measures, or availability and use of non-CVP water supplies. However, in a severe water shortage the District's supply can be reduced to "public health and safety" requirements as happened in 2022. In 2022, Reclamation determined that the District had adequate water supplies available to them through its wells and its ACID water transfer agreements to meet its public health and safety, resulting in a zero supply under its water service agreement with Reclamation.

The level of supply shortfall is expressed as a percent of the normally occurring demand that would need to be reduced to meet the available supplies. Available supplies include CVP, ACID long-term transfer, and groundwater. This percent reduction is matched to the total reduction goal shown in **Table** 8-1 to select the appropriate stage. Additional factors to be considered in implementing a water reduction stage include the following:

- Time and circumstances permitting, stages should be stepped through without skipping stages. This avoids drastic and sometimes unnecessary actions that may cause problems for the District including loss of customer confidence, financial shortfall, and difficulties implementing the emergency water reduction program.
- Customer response to the current stage may either require the District to implement the next stage or remain at a current stage. The stages allow the District to note the customer's response to less severe stages before implementing the stricter stages.
- Predictions of demand and supply are not always accurate. To help determine if the water reduction program is achieving expected results, demands should be monitored monthly during Stage 1, weekly during Stages 2 and 3, and daily during Stages 4 and 5.

The estimate of the water supply shortage is rough, and a contingency should be made to err on the side of achieving a more than adequate water reduction level. Additions to the actions and methods shown in **Appendix I** may be adjusted by future resolutions.

8.3 Prohibitions on End Users

Legal Requirements:

CWC 10632
(a)(4) Shortage response actions that align with the defined shortage levels and include…
(B) Locally appropriate demand reduction actions to adequately respond to shortages., and
(D) Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions.

The Water Shortage Contingency Plan (see **Appendix I**) contains a table of customer measures during each water shortage stage. In order to provide information on the measures required for the current water supply condition the applicable measures will be distributed to customers and posted on the District's website whenever a stage other than Stage 1 is declared. Water uses regulated or prohibited under the Water Shortage Contingency Plan are considered to be nonessential; and continuation of such uses during times of water shortage or other emergency water supply condition are deemed to constitute a waste of water which subjects the offender(s) to surcharges, penalties, and/or fines.

The customer reduction goals by stage, shown in the tables in **Appendix I**, vary by customer type to achieve the overall desired reduction goal for the stage, while acknowledging the constraints various customer classes may have in effecting short-term demand reduction. Alternative allocations may be considered at the time a given stage is implemented. The District recognizes that reductions for commercial and public institutional customers can have significant economic impacts. Therefore, the requested reductions to commercial and public institutional customers are lower than for residential, rural, and agricultural customer classes. It was also recognized that multi-family residential water users have primarily indoor water use and cannot reduce their water use as much as single-family residences, which typically use nearly half or more of their annual water use for outdoor purposes.

Mandatory prohibitions on water wasting include use of potable water for street cleaning, washing paved or hard-surfaced areas, and failure to repair a controllable leak of water**. Table** 8-2 contains mandatory prohibitions and the water shortage stage when they are enacted.

Table 8-2: Water Shortage Contingency – Mandatory Prohibitions

Customer Actions		Stage 1	Stage 2	Stage 3	Stage 4	Stage 5		Stage 6	
						ST	LT	ST	LT
Water Waste	Water shall be used for beneficial uses only; all unnecessary and wasteful uses of water are prohibited (District Policy Manual Section 143).	✓	✓	✓	✓	✓	✓	✓	✓
	Water shall not be applied to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures. Care shall be taken not to water past the point of saturation.	✓	✓	✓	✓	✓	✓	Landscape Irrigation is Prohibited	
	Free-flowing hoses for all uses shall be prohibited. Customers shall use automatic shutoff devices on any hose or filling apparatus in use.	✓	✓	✓	✓	✓	✓	✓	✓
	Leaking customer pipes or faulty sprinklers shall be repaired within the specified working days or less by Stage after due to the severity of the problem or shall not be utilized until repaired.	5 Days or Less	5 Days or Less	2 Days or Less	24 hours or Less	24 hours or Less		Immediately	
Pools and Water features	All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leakproof.	✓	✓	✓	✓	✓	✓	✓	✓
	Swimming pool and spa covers encouraged to prevent evaporative water loss.	✓	✓	✓	✓	✓	✓	✓	✓
	Potable water use for ornamental ponds and fountains is prohibited.					✓	✓	✓	✓
	Pool draining and refilling shall be allowed only for health, maintenance, or structural considerations.	✓	✓	✓	✓	✓	✓	✓	✓
	Water use for ornamental ponds, fountains, or other ornamental water feature for aesthetic purposes is prohibited except where necessary to support aquatic life.				✓				

Customer Actions		Stage 1	Stage 2	Stage 3	Stage 4	Stage 5		Stage 6	
						ST	LT	ST	LT
	Water use for ornamental ponds and fountains is prohibited.					✓	✓	✓	✓
Buildings and Driveways	Washing streets, parking lots, driveways, or sidewalks, except as necessary for health, aesthetic, or sanitary purposes, is prohibited.	✓	✓	✓					
	Application of potable water to driveways and sidewalks is prohibited				✓	✓	✓	✓	✓
Water Use Reductions	Residential and Rural Customers Reductions.	Up to 10%	10-20%	20-30%	30-40%	40-50%	40-50%	50%or more	50%or more
	Multi-family and Public Institutional Customers Reductions	Up to 10%	10-20%	20-30%	30-40%	40-50%	40-50%	50%or more	50%or more
	Commercial Customers Reductions	Up to 10%	5-10%	20%	30%	30%	30%	30% or more	30% or more
	Landscape Irrigation Reductions	Up to 10%	15-25%	25-35%	35-50%	50%	50%	100%	100%
	Water use exceedance tiered pricing or penalties may be implemented.			✓	✓				
	Water use exceedance tiered pricing or penalties will be implemented					✓	✓	✓	✓
Irrigation	To reduce evaporation, between March 1 and October 31 the use of sprinkler irrigation systems for all landscape irrigation systems shall be limited to be between the hours of 7:00 p.m. and 9:00 a.m. Sprinkler irrigation systems may be run outside of these hours for testing, but not for more than 15 minutes per cycle and only long enough to verify proper operation and make sprinkler adjustments.	✓	✓	✓	✓	✓	✓	Landscape Irrigation is Prohibited	
	Customers with "smart" irrigation timers or controllers are asked to set their controllers to achieve the specified % of the evapotranspiration (ET) rate.		90-95%	75%	75%	50-75%	50-75%		
	Irrigated landscaped areas shall include efficient irrigation systems (e.g., drip irrigation, timed sprinklers, rain sensors, low-flow spray heads, etc.).	✓	✓	✓	✓	✓	✓	Landscape Irrigation is Prohibited	

Customer Actions		Stage 1	Stage 2	Stage 3	Stage 4	Stage 5		Stage 6	
						ST	LT	ST	LT
	Landscape irrigation limited to the days per week specified. Customers whose street addresses end with an odd number may water on Wednesday, Friday, and Sunday. Customers whose street addresses end with an even number may water on Tuesday, Thursday, and Saturday.			3 days per week	3 days per week	3 days per week	3 days per week		
	Application of potable water to outdoor landscapes during or within 48 hours after measurable rainfall is prohibited.			✓	✓	✓	✓		
Commercial	Eating or drinking establishments, including but not limited to: Restaurants, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased shall serve water only upon request.		✓	✓	✓	✓	✓	✓	✓
	Operators of hotels and motels shall offer patrons the option of not having their towels and linens washed daily.		✓	✓	✓	✓	✓	✓	✓
Equipment/Vehicle Washing	Motor vehicles or equipment shall be washed only with buckets or hoses with automatic shutoff nozzles.			✓	✓	✓			
	Motor vehicles and equipment shall be washed only at commercial establishments that use recycled or reclaimed water.						✓	✓	✓
Construction/New Service	Users of construction meters and fire hydrant meters will be monitored for efficient water use.		✓	✓			✓	No Construction Water	
	Water for flow testing and construction purposes from water agency fire hydrants and blow- offs is prohibited.					✓	✓	✓	✓
	Installation of new turf or landscaping is prohibited.				✓	✓	✓	✓	✓
	New connections to the District's water distribution system will be allowed but their water use shall be restricted to the minimum requirements for personal health and safety.				✓	✓	✓	✓	✓
	No potable water from the District's system shall be used for construction purposes including but not limited to dust control, compaction, or trench jetting.					✓	✓	✓	✓
	No commitments ("will serves") will be made to provide service for new water service connections.								✓
Health & Safety	Flushing of water mains, sewers, or fire hydrants is prohibited except for emergencies and essential operations.			✓		✓	✓	✓	✓

Customer Actions		Stage 1	Stage 2	Stage 3	Stage 4	Stage 5		Stage 6	
						ST	LT	ST	LT
	Water use shall be restricted so as to meet the minimum requirements for personal health and safety.					✓	✓	✓	✓

ST- Short Term
LT- Long Term

8.4 Penalties, Charges, and Other Enforcement of Prohibitions

Legal Requirements:

CWC 10632
(a)(6) Penalties or charges for excessive use, where applicable.

In 2022, in response to the continuing drought conditions and cutbacks in the District's CVP allocation, the District's Board of Directors adopted Resolution 22-02, on February 28, 2022, which established mandatory reductions in water use and penalties for customers exceeding their allocations. The "Exceedance Penalty Charge" for customers using more than their the base allotment was set at $2.00/HCF for both M&I and Agricultural Customers.

8.5 Consumption Reduction Methods by Agencies

Legal Requirements:

CWC 10632
(a)(4) Shortage response actions that align with the defined shortage levels and include… the following:
(E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

The UWMPA requires that the UWMP include an urban water shortage contingency analysis that estimates reduction in consumption to be expected by the measures included in the agency's water shortage contingency plan. **Table** 8-3 contains consumption reduction methods by water shortage stage with projected reduction.

Table 8-3: Water Shortage Contingency – Consumption Reduction Methods

Consumption Reduction Method	Stage When Method Takes Effect	Projected Reduction (%)
Public Education	All	Up to 10%
Voluntary Rationing	1	Up to 10%
Mandatory Rationing	2-5	20% to 50% or more
Excess Water Use Penalties and Water Shortage Pricing	2-6	20% to 50% or more
Prohibition of Outdoor Watering	6	More than 50% during the irrigation season

8.6 Monitoring and Reporting Requirements

Legal Requirements:

CWC 10632
(a)(9) For an urban retail water supplier, monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements.

Demands must be monitored frequently during emergency water shortages to enable the District to effectively manage the balance between supply and demand. Following are procedures for monitoring reductions during different stages:

- In normal water supply conditions (Stage 1), production and pumping amounts are recorded daily. Totals are reported monthly to the District Engineer.
- During Stage 2, 3 and 4 water shortage conditions, weekly production and pumping amounts are reported to the District Engineer to compare the weekly data to the targets to verify that the reduction goal is being met.
- During a Stage 5 or 6 water shortage, a daily production and pumping report will be provided to the District Engineer to verify that the reduction goal is being met.

8.7 Revenue and Expenditure Impacts/Measures to Overcome Impacts

Legal Requirements:

CWC 10632
(a)(8) A description of the financial consequences of, and responses for, drought conditions, including, but not limited to, all of the following:
(A) A description of potential revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).
(B) A description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).
(C) A description of the cost of compliance with Chapter 3.3 (commencing with Section 365) of Division 1.

The revenue sources available to the District include water sales, system connection fees, interest income, special assessments, reserves, and other non-operating revenues including various grants.

The District's current rate schedules are based on assigning fixed costs to base rates and variable costs to usage rates. In doing so, and when water usage is reduced due to water shortages or other causes (e.g., unusually wet weather), the reduction in revenues is generally matched by a reduction in expenses. However, during a drought the District's expenses, per acre-foot, for additional water supplies such as short-term water transfers and increased costs for producing more water from its groundwater wells exceed the per acre-foot expenses for water in a non-shortage year.

The District currently maintains a specific M&I Rate Stabilization Fund to help mitigate the expense and revenue impacts of a prolonged drought. In addition, costs for supplemental water for its agricultural customers during a severe water shortage are passed directly through to the agricultural customers that participate in the District's Supplemental Water Program.

Additionally, there may be outside funding sources made available to water agencies under a water emergency situation (Stages 3 through 6).

8.8 Resolution or Ordinance

The California Water Code requires that the District develop mandatory provisions and a draft water shortage contingency resolution as part of the UWMP to reduce water use, including prohibitions against specific wasteful practices, such as gutter flooding. In March 2021, the District adopted a Drought Contingency Plan that included a Water Shortage Contingency Plan (**Appendix I**). The District's Board of Directors must be kept well informed of the shortage status to enable them to make timely and appropriate decisions on the following actions:

- Declaration of water shortage emergency,
- Adoption of Emergency Water Reduction Plan,
- Frequent assessment of water shortage status,
- Adoption of resolutions to change stages as necessary, and

- Coordination with customers on the development and implementation of the plan.

8.9 Catastrophic Supply Interruption

Legal Requirements:

CWC 10632
(a)(3)(A) Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

The UWMPA requires that the District develop stages of action to be undertaken during a catastrophic interruption of water supply or the District's water treatment facilities that could include flooding, major fire emergencies, regional power outage, earthquake, water contamination, and acts of sabotage. In response to these possibilities, the District has developed an Emergency Response Plan, which includes appropriate personnel listings, resource inventories, locations for emergency operations centers, response procedures, and the steps necessary to resume normal operations. The plan contains a section on the water system including alternative water sources and communication procedures. These procedures are consistent with guidelines prepared by the California State Office of Emergency Services.

Stages 5 and 6 of the District Water Shortage Contingency Plan's response actions include water use restrictions and prohibitions for both short-term and long-term shortages. The Stage 6 short-term provisions are intended for implementation during power outages, an earthquake, and other potential emergency events.

8.10 Supply Availability – Normal, Single Dry, & Five-Year Drought

Legal Requirements:

CWC 10631
(b)(1) A detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought, as described in the drought risk assessment.

The California Water Code requires that the District discuss the anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought.

The District's primary water supply is through its CVP Water Service Contract with Reclamation. That contract provides for up to 24,578 acre-feet of water in a normal year. The District also has a long-term transfer agreement with the Anderson-Cottonwood Irrigation District totaling 1,800 acre-feet of water in a normal year. **Figure** 7-2 shows the historical CVP water allocations to the District and ACID from 1977 through 2025.

In addition to its surface water supplies, the District has five groundwater wells that are capable of producing approximately 3,000 acre-feet annually. Therefore, in a normal water year the District's available water supplies total approximately 29,400 acre-feet which greatly exceeds its normal demand (in 2025 the total water usage was 8,655 acre-feet). It should be noted that in a normal year and in years when the combination of its CVP and ACID long-term transfer supplies are adequate to meet all of the District's water demands, the wells are typically run for less than one month producing approximately 300 AF per year.

The worst CVP allocations that the District has ever received from Reclamation were in 2022, when Reclamation's CVP allocation for the District was 0 percent of historical M&I usage and a 0 percent allocation for irrigation.

Typically, whenever the District's Irrigation allocation is zero, the amount of water available under the District's long-term transfer with ACID is reduced to 75% of the amount available in a normal year. However, in 2025 a new "Drought Protection Plan" agreement between the Settlement Contractors and Reclamation modified the amount that Settlement Contractors would receive during critical water shortage years. In certain "Critically-Dry-Years" their allocations would be reduced to 50% and in all other years they would receive their full allocation. In that case, the amount of water available from ACID would be 900 AF. In a single dry year, the District would produce as much water as they could from their current wells, which would be approximately 3,000 AF. This would result in a total supply of approximately 4,800 AF before any short-term transfers.

By 2035, the District is planning to construct one new well capable of producing approximately 1,000 AF per year and by 2045, the District is planning to construct a second new well capable of producing approximately 1,000 AF per year. These well yields are based on previous assumptions and actual wells yields may differ. The water supplies provided by these new wells is included in the future supply totals for the District.

In the 60 years that the District has been delivering water to its customers, it has never experienced a five-year drought. The worst five-year drought that the District has experienced was from 1990 through 1994. **Figure** 7-2 shows the historical CVP water allocations to the District and ACID from 1977 through 2025. As can be seen in **Figure** 7-2, the 1990-1994 drought was interrupted by a normal year in 1993.

There have been significant changes in CVP Project operations since the 1990s. Generally, they have resulted in allocation reductions to CVP contractors, more water kept in storage, and increased releases for fisheries and Delta water quality. Therefore, the analysis for a five-year drought is based on the 2020 through 2024 drought with the fourth and fifth years being a repeat of the 2020 and 2021 years.

Table 8-4 establishes the basis for the lowest estimated water supply for the next five years based on CVP water allocations for the base years shown. The ACID transfer quantities use the critical year allotment for the second through fifth years. It also assumes that well production will be maximized during the shortage years and will diminish by approximately ten percent in the fourth

year and an additional ten percent in the fifth year. The table is based on the District's current well production capacity.

Table 8-4: Water Supplies for Five-Year Drought

Year	Base Year(s)	Available Supplies				
		CVP	ACID[3]	Ground-water[5]	Other[1]	Total[2]
1st Year	2020	14,089	1,800	2,660	0	18,549
2nd Year	2021	1,850	1,800	2,660	1,000	7,310
3rd Year	2022	0	900	2,394	1,000	4,294
4th Year[6]	2020	14,089	1,800	2,660	0	18,549
5th Year[6]	2021	1,850	1,800	2,394	1,000	7,044

1-Other supply includes transfers, which are subject to availability. Future availability is unknown.

2-All water deliveries are calculated in acre-feet per year (AFY). It should be noted that they are not adjusted for population growth.

3-ACID transfers can be reduced to 900 AF/year in a critically dry year

4-Based on a normal annual demand of 9,130 acre-feet.

5-Groundwater production assumed to drop off by approximately 10 percent per year if pumped for multiple consecutive years.

6-Fourth and fifth year of the drought assumed to be a repeat of the 2nd and 3rd years.