

DROUGHT CONTINGENCY AND EMERGENCY WATER DEMAND MANAGEMENT PLAN

Water uses regulated or prohibited under this Rule are considered to be non-essential, and continuation of such uses during times of water restrictions, as defined herein, are deemed to constitute a waste of water.

A. Introduction

The goal of this Drought Contingency and Emergency Water Demand Management Plan (hereinafter, "the Plan") is to cause a reduction in water use in response to drought or emergency conditions so that water availability can be preserved. Since emergency conditions can occur rapidly, responses must also be enacted quickly. This Plan has been prepared in advance considering conditions that will initiate and terminate the actions set forth herein.

The Sutton County Underground Water Conservation District (hereinafter, "the District") Board of Directors (hereinafter, "the Board") will monitor water usage patterns; inform the public of drought conditions through the media, District website, and notices placed at various locations, make decisions on the degree of restrictions that apply to the City of Sonora (hereinafter, "the City") and the County of Sutton (hereinafter, "the County"); and consider appropriate changes to this Plan. The Board will develop public awareness notices, information sheets, and other material that will serve as a constant reminder that water should be conserved at all times, not just during a drought or emergency conditions. The Board will also review and evaluate any needed amendments or changes to this Plan due to changes in the aquifer or other relevant circumstances. This review and evaluation will be done every year for the first three (3) years of implementation and every other year subsequently unless conditions necessitate more frequent amendments.

The Plan will be implemented according to the categories of rationing as imposed by the Board. Section C describes these categories and conditions.

B. Background

The County (an area of 929,920 Acres) is over the Edwards-Trinity Aquifer (hereinafter, "the Aquifer") in the region where it historically receives an average annual rainfall of 23" in the eastern half of the county and 21" in the western half of the County. The calculated recharge versus annual precipitation for the County is approximately 1.0" per year. An evaluation of the local hydrogeology determined that the county must receive an average of at least 17" of rain before recharge can occur (*Green and Bertetti, 2010*). Because the County does not have surface water that is useable to any great extent, it is totally dependent on groundwater resources for its water supply. The groundwater used in the District comes from the Aquifer.

The Aquifer is karst, which means it is composed of limestone that is fractured, channeled, and in some areas cavernous. There are two areas that have sufficiently large quantities of water capable of allowing wells to yield 100 or more gallons per minute (gpm). One area of large water quantity is along Granger Draw in the northwest corner of

the District. The other area of large water quantity is in the Dry Devils River floodplain in the central region of the District. Together, the two areas are capable of producing up to 3,200 to 6,400 acre-feet per year (ac-ft/yr). An acre foot of water is equivalent to 325,851 gallons or covers an acre of land one foot deep. The Aquifer in the remainder of the District can typically only support wells with a lower rate of flow. The geological diversity of the Aquifer in the County makes it necessary to monitor the potentiometric surface of the aquifer in both the prolific (*i.e.*, in large floodplains) and less prolific (*i.e.*, away from large floodplains) areas to effectively determine the effects of drought on the water levels and the status of groundwater resources.

The District drilled and developed a drought index well (hereinafter, "DIW") in the floodplain of the Dry Devils River at the north end of the Sonora Golf Course. Elevation from the top of the well is 2,148' mean sea level (msl) and its total depth is 217' (1,931' msl). The DIW is equipped with an electronic water level sensor at 200' (1,948 msl). The water level sensor in the DIW is an In-Situ Model 500 Level Troll sensor (hereinafter, the "Sensor") that is vented to atmosphere for more accurate measurements of aquifer activity. The information from the Sensor will be used to form a set of drought triggers that will indicate different stages of drought severity. By monitoring the water levels in the aquifer at the DIW, the District will be able to more accurately administer the level of restrictions for the City appropriate for the severity of drought.

In conjunction with the DIW, each month the District measures the static water level of thirty-one (31) wells strategically located over the area of the District. Fifteen (15) of these wells are equipped with automated water level sensors. The water levels in fourteen (14) wells are measured with a steel tape, and two (2) wells are measured with an E-line (electric-line). In addition, there are thirty-one (31) automated rain gauges distributed throughout the District and ten (10) graduated rain gauges located around the City for a total of forty-one (41) rain gauges. Each quarter-year the corresponding measured water levels and measured precipitation from all measured sources are graphed. The quarter-annual water levels are used to prepare a map of the potentiometric surface of the aquifer. This surface describes the groundwater surface of the aquifer for that period of time. Over time, the changes in the potentiometric surface will be used to show the increases and decreases in the water level of the aquifer. Linking the potentiometric surface information with the DIW levels will allow the District to determine whether the DIW accurately represents the status of groundwater resources for the entire District.

C. Public Involvement

Opportunity for the public to provide input into the preparation of the Plan was provided by the Board. The Board scheduled and posted a notice at the District Office, the Sutton County Annex, the District's website, and in the local newspaper of a public meeting to accept input on the Plan. In the adoption of this Plan, the Board considered all comments from landowners.

D. Public Education

Within three (3) months of the Plan's enactment, the District will send a mailer summarizing the details of the Plan to each individual and entity in the District's jurisdiction affected by the Plan. The District will periodically provide the public with information about the Plan, including information about the conditions under which each drought stage of the Plan is to be initiated or terminated and the drought response measures to be implemented in each stage. This information will be provided by means of articles and/or news releases in the local newspaper and on the District website.

E. Coordination with Regional Water Planning Group

The service area of the District is located within the Regional Water Planning Group F. Regional Water Planning Group F has been provided a copy of this Plan. The City has also been provided a copy of this Plan.

F. Authorization

The general manager of the District is hereby authorized and directed to implement the applicable provisions of the Plan upon determination that such implementation is necessary to protect public health, safety, and welfare. The general manager shall have the authority to initiate or terminate drought stages or other water supply emergency response measures as described in this Plan.

G. Application

The provisions of the Plan shall apply to all homeowners and property owners utilizing water within the boundaries of this District. The terms "person" and "property owners" as used in the Plan include individuals, corporations, partnerships, associations, and all other legal entities.

H. Trigger Conditions For Initiating and Terminating Drought Stages

The Board is responsible for monitoring water supply and demand conditions on a quarter-annual basis (or more frequently as conditions warrant) and shall determine when conditions warrant initiation or termination of each drought stage of the Plan. The Board will monitor drawdown reports, water supply in storage, and rainfall to determine when drought conditions are attained. The drought stage triggering conditions described in Table 1.0 below takes into consideration the vulnerability of the water source under drought of record conditions, the production and distribution capacities of the aquifer, and projected water usage based upon historical patterns. As improved technology and data is made available to the Board, the Board may adjust the table so long as the adjustments are related to such improved technology and data.

The DIW in the main channel of the Dry Devil's River on the north end of the Sonora Golf Course allows for measurement of fluctuations in the aquifer. These measurements are used to formulate drought stage triggers for the City's water supply. The Board will report

the measurements to the City on a daily basis by email, fax, or other means agreed to by the City and the Board. Within one year after the authorization of this plan, a wireless node will be installed at the well that reports real time data measurements to both the City and the Board. The table below shows the drought trigger designations, drought stages, and associated aquifer levels in terms of groundwater elevation, mean sea level, (msl) at the DIW.

Table 1.0 – Drought Trigger/Stage Levels

Drought Trigger	Drought Stage	Aquifer Level
0	Normal Base	1986.0 msl
D0	Abnormally Dry	1984.5 msl
D1	Moderate Drought	1983.0 msl
D2	Severe Drought	1981.5 msl
D3	Extreme Drought	1980.0 msl
D4	Exceptional Drought	1978.5 msl

I. Stage Levels of Water Allocations

The stage levels of water restrictions are to be placed in effect by the drought stage triggers identified in Section H, above. The District may institute monitoring and enforce penalties for violations of the Plan for each of the stages listed below. The City is recognized by the District as the responsible entity that manages the water system use of its citizens and administers the water resources of its citizens. Therefore, the City will be held responsible for adherence to the various stages of drought severity during drought conditions. The District is responsible for ensuring land owners outside the extraterritorial jurisdiction of the City adhere to the various stages of drought severity during drought conditions.

The water restriction measures are summarized below.

a. Stage I - Abnormally Dry (D0)

1. Alternate day, time of day, or duration restriction for outside water usage allowed. (District will notify public water utilities and landowners which restrictions are in effect).
2. The public water utilities will reduce flushing operations to the extent allowed by applicable law (operations a city does to clear water lines of dirt, sand, and gravel after a water-line repair).
3. Reduction of water use will be encouraged through local media (radio, newspaper, and District website).

b. Stage II - Moderate Drought (D1)

Goal: Achieve a 10% reduction in total daily water use until such time as conditions change in accordance with Section J.

1. All requirements of Stage I shall remain in effect during Stage II
2. Water users are requested to voluntarily limit irrigation of landscaped areas twice per week: even numbered residences may irrigate on Wednesday and Saturday, and odd numbered residences may irrigate on Thursday and Sunday.
3. Golf courses and athletic fields are allowed to use water on Monday, Wednesday, and Friday in the hours from 10:00 pm to 8:00 am. These areas shall be watered for that period of time it takes to attain 1" of accumulated water; as described in I (c) (2) below.
4. Public service announcements will be made as conditions change via local media (radio, newspaper, and District website).

c. Stage III - Severe Drought (D2)

Goal: Achieve a 20% reduction in total daily water use until such time as conditions change in accordance with Section J.

1. All requirements of Stage II shall remain in effect during Stage III.
2. Irrigation of landscaped areas shall be limited to one day per week: Mondays for households and Wednesdays for commercial, golf course and athletic fields. Automated sprinkler systems are permitted, but may only run for the period of time it takes to accumulate one (1") inch of equivalent rainfall. Landowners can measure the amount of equivalent rainfall with a small 1" gauge by setting the gauge in the center of the yard, turning on the sprinkler system, and recording the time it takes the sprinkler system to fill the gauge to the 1" mark. The recorded time can then be used to operate the system for the specified 1" rain equivalent on the day irrigation of landscaped areas is permitted.
3. Washing of automobiles, trucks, trailers, boats, and other types of mobile equipment must be done over pervious cover or at car wash facilities.
4. Water troughs or any water receptacles with mechanical float controls shall be routinely inspected by the District and properly maintained to prevent leaks and water waste.
5. Use of water to fill, refill, or add to any indoor or outdoor swimming pools, wading pools, or Jacuzzi-type pools is prohibited except on designated watering days during the designated watering hours (10:00 pm to 8:00 am). When such facilities are not in use, some form of surface cover shall be used to limit the evaporation of water.

6. Operation of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life (freshwater game fish) or where such fountains or ponds are equipped with a recirculation system.

7. Irrigation of a golf course fairway is limited to once per week, Wednesday. Automated sprinkler systems are permitted, but may only run for the period of time it takes to accumulate one (1") inch of equivalent rainfall. The golf course can measure the amount of equivalent rainfall with a small 1" gauge by setting the gauge in the center of the yard, turning on the sprinkler system, and recording the time it takes the sprinkler system to fill the gauge to the 1" mark. The recorded time can then be used to operate the system for the specified 1" rain equivalent on the day irrigation of landscaped areas is permitted.

8. Irrigation of athletic fields is limited to one day per week on Monday (10:00 pm to 8:00 am).

9. All restaurants shall serve water to their customers only upon request.

10. The use of water for construction purposes from designated fire hydrants under special permit is to be discontinued.

d. Stage IV - Extreme Drought (D3)

Goal: Achieve mandatory 30% reduction in daily groundwater use until such time as conditions change in accordance with Section J.

1. All requirements of Stage III shall remain in effect during Stage IV.

2. Irrigation of lawns and landscaped areas shall be limited to once a week: Wednesday from the hours of 10:00 pm to 8:00 am and shall be by means of hand-held hoses or hand-held buckets only. No hose end sprinklers or automatic sprinklers are allowed at any time.

3. The watering of golf courses is prohibited. These requirements also apply to the irrigation of parks, public properties, and athletic fields.

4. Sales of groundwater for commercial or industrial use from within the District are prohibited.

5. Use of water by governmental or commercial entities from hydrants shall be limited to firefighting, firefighting related activities, or other activities necessary to maintain public health, safety, and welfare.

6. Irrigation of any crops not intended for human and/or animal consumption is prohibited.

7. Leak-proof troughs shall be used to provide water for livestock.
8. Use of groundwater for construction activities is prohibited.
9. Hydraulic fracturing activity and/or exportation of water outside the District shall be prohibited.
10. The issuance of new well drilling permits may be suspended except to replace an existing well.

e. **Stage V – Exceptional Drought (D4)**

Goal: Achieve mandatory 40% reduction in daily groundwater use until such time as conditions change in accordance with Section J.

1. All requirements of Stage IV shall remain in effect during Stage V.
2. Irrigation of lawn and landscaped areas is prohibited at all times.
3. Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane, or any other mobile vehicle is prohibited at all times.
4. The filling, refilling, or adding of potable water to swimming pools, wading pools, or Jacuzzi-type pools for any reason is prohibited.
5. No additional, expanded, or increase-in-size water service connections, meters, service lines, pipeline extensions, mains, or water service facilities of any kind shall be allowed or approved.
6. In the event of system failure, the water supply will be managed by such measures necessary to maintain public health and safety.
7. Irrigation of any crops, including those designated for human and/or animal consumption, is prohibited.
8. No new well drilling or operating permits shall be issued except to replace an existing well on an emergency basis.

J. INITIATION AND TERMINATION PROCEDURES

Once a drought trigger condition occurs, the District, or its designated responsible representative, shall, based on recommendations from the Board, decide upon the appropriate stage of restriction to be initiated. Once the District decides upon the appropriate stage of restriction to be initiated, it shall provide the public with a notice

describing the stage of restrictions.

The notice shall contain the following information:

- a. the date water restrictions shall begin;
- b. the fact that the District will monitor the duration of the stage of restriction using the data obtained from the DIW and potentiometric surface maps; and
- c. the stage (level) of water restrictions to be employed, the penalty for violations of the water conservation program, and the affected area or areas.

When a drought trigger condition improves, the District may ease the water restrictions provided that such an action is based on measured data. Conversely, if conditions continue to worsen, the District may invoke the next trigger in accordance with measured data. Water restrictions will remain in effect until it is evident that aquifer levels have sufficiently recovered enough to allow pumping to resume at a level commensurate with an associated drought trigger. Because there is a lead/lag relationship between precipitation and aquifer recovery, it is not possible to predict beforehand the length of time restrictions must remain active. When the Board begins easing restrictions as a result of measured data indicating such easing of restrictions is appropriate, the Board shall give District landowners information pertaining to the easing of the restrictions via local media (TV, radio, newspapers, and the District website).

K. PENALTIES FOR VIOLATIONS

- a. **First Violation-** The Violator will be notified by written notice of the Violator's specific violation and the Violator's need to comply with District rules. The notice will show the amount of penalty to be assessed for continued violations.
 1. Failure to comply with Stage 1 restrictions results in a fine of \$250.00 per violation per day.
 2. Failure to comply with Stage 2 requirements results in a fine of \$500.00 per violation per day.
 3. Failure to comply with Stage 3 requirements results in a fine of \$1,600.00 per violation per day.
- b. If the Violator does not comply by Stage 4 or 5, the District may assess a penalty of up to \$2,500.00 per day.
- c. **Subsequent Violations-** The District may assess a penalty of up to \$10,000.00 per violation for continuing violations. Each day a violation exists shall be considered a separate, subsequent violation. The District may also install a flow restricting device in the Violator's well to limit the amount of water that will pass through the well in a twenty-four (24) hour period. The costs associated with the purchase of a flow restriction device and its installation in accordance with this procedure shall be paid by the Violator in addition to any penalty assessed.

These penalty provisions apply to all landowners and/or potable water supply operators (hereinafter, "Water Suppliers") within the District. Municipal Water Suppliers are responsible for ensuring their customers comply with these provisions. Municipal Water Supplies shall be deemed to be the violator if a customer or user of the Water Supplier violates this Plan.

L. EXEMPTIONS OR WAIVERS

The Board may, in writing, grant temporary variance for existing water uses otherwise prohibited under the Plan if it determines that failure to grant such variance would cause an emergency condition adversely affecting the health or sanitation of the public or the person requesting such variance and if one or more of the following conditions are met:

- a. Compliance with this Plan cannot be technically accomplished during the duration of the water supply shortage or other condition for which the Plan is in effect.
- b. Alternative methods can be implemented which will achieve the same level of reduction in water use.

Persons requesting an exemption from the provisions of this Plan shall file a petition for variance with the Board within five (5) business days after the Plan or particular drought response stage has been invoked or after a condition justifying the variance first occurs. "Business day" shall be defined as any day, Monday through Friday, excluding Saturday, Sunday, and national holidays. If any date set forth in this Plan or computed pursuant to this Plan falls on a Saturday, Sunday or national holiday, such date shall be deemed automatically amended to be the first business day following such weekend day or holiday. All petitions for variances shall be reviewed by the Board and shall include the following:

- a. Name and address of the petitioner(s).
- b. Purpose of water use.
- c. Specific provision(s) of the Plan from which the petitioner is requesting relief.
- d. Detailed statement as to how the specific provision of the Plan adversely affects the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with the Plan.
- e. Description of the relief requested.
- f. Period of time for which the variance is sought.
- g. Alternative water use restrictions or other measures the petitioner is taking or proposes to take to meet the intent of this Plan and the compliance date.
- h. Other pertinent information, as requested by the Board.

Variations granted by the Board shall be subject to the following conditions, unless specifically waived or modified by the Board:

- a. Variations granted shall include a timetable for compliance.
- b. Variations granted shall expire when the water restrictions in effect at the time of the granting of the variance are no longer in effect, unless the petitioner has failed to meet specified requirements. No variations allowed for a condition requiring water restrictions will continue beyond the termination of water restrictions under Section H. Any variations for subsequent water restrictions must go through a separate petition process. The fact that a variance has been granted in response to a petition will have no relevance to the Board's decision on any subsequent petition.

No variance shall be retroactive or otherwise justify any violation of this Plan occurring prior to the issuance of the variance.

M. SEVERABILITY

If any one or more of the provisions contained in this Plan are for any reason held to be invalid, illegal, or unenforceable in any respect, the invalidity, illegality, or unenforceability may not affect any other rules or provisions of these rules, and these rules must be construed as if such invalid, illegal or unenforceable rules or provision had never been contained in these rules.

N. IMPLEMENTATION

The Board established the DROUGHT CONTINGENCY AND EMERGENCY WATER DEMAND MANAGEMENT PLAN by Resolution. This Board will review the procedures in this Plan every year for the first three (3) years of implementation and subsequently every other year unless conditions necessitate more frequent review. Modifications may be required to accommodate system growth, changes in water use demand, available water supply, and/or other circumstances.

This Plan was adopted by the Sutton County Underground Water Conservation District Board at the properly noticed public meeting held on March 12, 2013.