

**CRITICAL PERIOD MANAGEMENT PLAN**  
**for**  
**EDWARDS AQUIFER WATER USE**  
**at**  
**JOINT BASE SAN ANTONIO**



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## **1.0 PURPOSE**

The Edwards Aquifer is the sole source of potable water for San Antonio. The future growth and economic sustainability of Joint Base San Antonio (JBSA) and the greater San Antonio area rests with the propagation of effective water conservation measures. Not only is the aquifer the main source of water for San Antonio, it is also home to several endangered species and habitats, which depend on the flow from aquifer springs for survival. Demands on the aquifer, combined with meteorological conditions, drive the level of the aquifer down, such that the flows of the springs are decreased. During summer months, when these flows reach minimal levels, the lives of these endangered species are threatened.

Joint Base San Antonio entered into formal consultation with the U.S. Fish and Wildlife Service (USFWS) to address the potential impacts on endangered species from the continued use of water from the Edwards Aquifer by JBSA. As a result of the consultation, a "Biological Opinion" (BO), was issued that commits JBSA to rigorous water conservation efforts.

This conservation management plan is a directive for all organizations at Joint Base San Antonio. **All individuals on JBSA (employees, housing residents, privatized housing residents, contract personnel and all mission partners) are required to comply with these water conservation measures.** Persons found in violation of these measures will be held accountable for their actions. When users are notified of discrepancies, they need to be corrected immediately.

As the sole source of potable ground water for Joint Base San Antonio and the surrounding communities, the Edwards Aquifer is a vital resource for the continued operation and growth of the area. Successful implementation of sound drought management practices ensures quality of life and economic sustainability for both Joint Base San Antonio and the greater San Antonio area. This effort requires the action and support of all base personnel.

Alerts to drought management actions will occur through the weekly bulletin, marquee messages, newspaper articles, and commander's access channel announcements. This Plan will be updated annually and remain in effect until superseded.

## **2.0 DEFINITIONS**

**2.1. Water** is any water obtained from JBSA's water distribution system, or water brought onto JBSA by a contractor, unless the contractor has an affidavit proving that the water was not obtained from the Edwards Aquifer.

**2.2. Person** includes individuals, organizations, and contract personnel.

**2.3. Lawn and turf** includes grass and turf areas around housing units and base facilities, including parade and athletic fields.

**2.4. Landscape** includes shrubs, trees, flowers, vegetables, and other ornamental plants.

**2.5. Kgal** is a kilogallon, which equals 1,000 gallons. JBSA's water usage is measured in kilogallons.

**2.6. Hand-held method** is defined as using a hose whose diameter is less than 1 inch or using a bucket that holds 5 or fewer gallons.

**2.7 Water Waste** is defined as any use of water not in compliance with the JBSA Water Conservation Plan. Water waste includes, but is not limited to: Landscape watering by irrigation system or sprinkler outside of the allowed times, allowing water from any source to run off into a gutter, ditch, or storm drain, failure to repair a controllable leak, or landscape watering shortly after a rain event.

### **3.0 NON-CRITICAL PERIOD WATER CONSERVATION MANAGEMENT**

#### **3.1 STAGE NORMAL (NON-DROUGHT) WATER USE MEASURES (OPR: ALL)**

##### **Water restrictions based on Commander Approval.**

**3.1.1.** Any action resulting in water waste is prohibited.

**3.1.2.** Lawn/landscape watering shall be restricted to the following times and methods for each respective organization and/or housing unit:

**3.1.2.1.** Landscape watering with an irrigation system or sprinkler is permitted any day of the week between the hours of 2000 and 1000.

**3.1.2.2.** If needed, apply approximately no more than 1 inch of water to the turf/landscape at a time.

**3.1.2.3.** Watering with a hand-held garden hose with a diameter of 1" or less, drip irrigation, or a 5 gallon or less bucket is permitted at any time of the day for short (10-15 min) watering periods.

**3.1.2.4.** No fire hose watering unless hooked into irrigation-type system with appropriate backflow prevention. See respective Zone for approval/hook-up.

**3.1.2.5.** New turf/landscaping may be watered to maintain adequate growth until established.

**3.1.2.6.** Special circumstances may be coordinated and approved by the 502d Wing Commander or his/her designee and added as an amendment to this Plan

*Note: Daily watering of landscape/lawn does not help the deep-long growth of the roots needed to find water in the soil. By watering plants less often, the roots begin to grow and search for water in the soil. This will help and train them to survive using less water.*

**3.1.3.** Use turf/landscaping that features indigenous natural plant species. Indigenous plants, which are also called native plants, reduce the need for water. These plants can be attractively added to existing landscaping or can be used to replace all or part of existing landscape. Use a 2 to 3 inch layer of mulch around trees and in planting beds this will conserve soil moisture. Native grasses can be used to replace existing grass in areas where traditional carpet grass effect is not needed.

**3.1.4.** Washing impervious cover such as parking lots, driveways, streets or sidewalks is permitted without runoff to avoid water waste.

**3.1.5.** Non-commercial washing of vehicles and mobile equipment (e.g. washing privately owned vehicles at a residence) is permitted any time. Use of an automatic shut-off nozzle or bucket of 5 gallons or less is required to prevent water waste.

- 3.1.6.** The use of commercial vehicle wash facilities is permitted any day.
- 3.1.7.** Initiate an education program promoting water conservation. Activities include: public service announcements, news items, Base Bulletin announcements and other media information on water conservation techniques. (OPR: CES)
- 3.1.8.** Initiate a program to have base residents/employees watch for and report dripping faucets, leaking toilets, and water puddling in grassy areas or moving along street curbs which could indicate a subsurface broken water pipe. Enforce the use of low-flow toilets, low-flow showerheads, more efficient faucets and sprinkler systems when designing projects on base.
- 3.1.9.** Avoid driving vehicles over turf/landscape areas. The compacting of the soil makes the drainage of the water into the soil more difficult and damages root systems.
- 3.1.10.** Charity and fundraising events using base water are permitted with Base Civil Engineer approval. Charity car washes must be performed at facilities utilizing onsite water recycling. Dog washes, dunk tanks, or other similar activities must be done in the grass if at all possible, and water runoff should be prevented from running to ditches or storm drains. Utilize buckets, yard pools, or similar equipment to capture and reuse as much water as possible, and all excess water should be disposed of in the grass or in the sanitary sewer to prevent storm water contamination.
- 3.1.11.** Pools used for medical/therapy reasons are exempted from pool restrictions.
- 3.1.12.** As a good management practice, it is recommended that base personnel use a glass/cup when drinking water from water fountains and coolers to avoid waste.
- 3.1.13.** JBSA personnel will be directed to adopt any stage from this Plan at any time when the base approaches the monthly water withdrawal limits.
- 3.1.14.** Facilities that utilize recycled water from the San Antonio Water System (SAWS) or Cibolo Creek Municipal Authority (CCMA) will comply with watering set forth in this plan. Irrigation with recycled water is prohibited between 1000 and 2000. In the event the recycled water provider cannot provide any or adequate recycled water, Edwards Aquifer water will not be used except in extreme circumstances approved by the Wing Commander or his/her designee.
- 3.1.15.** If you have any questions or want to report any misuse or waste of water, please call: 210-221-3144 @ JBSA-Fort Sam Houston, 210-671-8339 @ JBSA-Lackland, & 210-652-3151 @ JBSA-Randolph.

## **4.0 CRITICAL PERIOD WATER CONSERVATION MANAGEMENT**

### **4.1. CRITICAL PERIOD WATER USE STAGES**

The following table summarizes the JBSA Critical Period Stage Reductions and stage indicator factors. Reduction factors will be implemented when trigger levels are reached at any of the following locations: (1) 10 day mean aquifer level as measured at the Bexar County Index Well on Fort Sam Houston (State Well No. AY-68-37-203, commonly referred to as J-17); (2) 10 day mean spring flow discharge as measured at Comal Springs; or (3) 10 day mean spring flow discharge as measured at San Marcos Springs.

**4.1.1 Table 1: Critical Period Trigger Levels and Reduction Requirements**

<b>STAGE</b>	<b>Bexar Index Well* (J-17) (feet above sea level)</b>	<b>Comal Spring Flow* (cubic feet per second)</b>	<b>San Marcos Spring Flow* (cubic feet per second)</b>	<b>% Reduction Required</b>	<b>Monthly Maximum Water Use***</b>
<b>Normal</b>	>660	>225	>96	0%	1,001
<b>I</b>	<660	<225	<96	20%	800.8
<b>II</b>	<650	<200	<80	30%	700.7
<b>III</b>	<640	<150	N/A	35%	650.65
<b>IV</b>	<630	<100	N/A	40%	600.6
<b>V</b>	<625**	<45 <40 (3 day ave)	N/A	44%	560.56
<p>* Using a 10 Day Average.    ** Using a Monthly Average.            ***Based on the Annual Maximum of 12,012 acre feet.</p>					

**4.2. CRITICAL PERIOD DECLARATION**

Declaration of a critical period is made based on water level measurements taken at Bexar County index well J-17 at Ft Sam Houston, the Comal Spring or San Marcos Spring Flow, whichever hits trigger level first based on Table 1 above. These parameters are used to initiate or terminate the various critical period stages, and implement various water use restrictions associated with each stage. Critical period stages become effective on notification by the 502d Air Base Wing.

Action alerts will also occur through the weekly bulletin, marquee messages, newspaper articles, and commander’s access channel announcements. Awareness activities will continue until all restrictions are lifted. Restrictions will be lifted when appropriate levels are maintained for the next lower trigger stage. Water use restrictions required for each critical period stage are discussed in sections 4.3-4.7.

**Table 2: Watering Days as Determined by the Last Digit of Address or Facility Number**

<b>Last Digit of Address/Facility #</b>	<b>Watering Day</b>
0 or 1	Monday
2 or 3	Tuesday
4 or 5	Wednesday
6 or 7	Thursday
8 or 9	Friday

**No watering on weekends with a sprinkler, soaker hose or irrigation system. Areas without a street address, such as medians and open fields, water on Wednesday.**

**4.3. STAGE ONE RESTRICTIONS (OPR: ALL)**

**Water restrictions based on Commander Approval.**

**4.3.1.** Continue Stage Normal Water Use Measures, except as noted or replaced by Stage One rules.

**4.3.2.** Landscape watering with an irrigation system, sprinkler or soaker hose is allowed only once a week before 1000 or after 2000 on your designated watering day, as determined by your address or facility number in Table 2.

**4.3.3.** You should reduce water consumption by any means available.

**4.3.4.** New turf/landscaping may be watered as identified in Stage Normal until adequate growth is maintained.

**4.3.5.** POV washing allowed once per week on Saturday or Sunday as long as there is no water waste. A positive shutoff nozzle must be used with hoses when washing cars to prevent water waste. Water should not be allowed to run into the street.

**4.3.6.** All swimming pools must have a minimum of 25 percent of the surface area covered with evaporation screens when not in use. Inflatable pool toys or floating decorations may be used.

**4.3.7.** Hand watering with a hand-held hose, soaker hose, drip irrigation, bucket or watering can is permitted any time and any day.

**4.3.8.** Washing impervious cover such as parking lots, driveways, streets or sidewalks is prohibited except in order to correct life, health, or safety concerns.

**4.3.9.** Irrigation of athletic fields is permitted only as required to maintain the turf viability/safety. Athletic fields continue Stage Normal Water Use Measures.

**4.3.10.** Landscape on golf courses are required to follow one-day-per-week watering

**4.3.11.** Use of fountains, waterfalls, or other aesthetic water features outdoors or indoors is prohibited, unless a variance has been granted for 100 percent non-potable water use.

**4.4. STAGE II RESTRICTIONS (OPR: ALL)**

**Water restrictions based on Commander Approval.**

**4.4.1.** Continue practices from Stage I, except as noted or replaced by Stage Two rules.

**4.4.2.** Landscape watering with an irrigation system, sprinkler or soaker hose is allowed only once a week 0700-1100 and 1900-2300 on your designated watering day, as determined by your address or facility number in Table 2.

**4.4.3.** Watering with drip irrigation or 5-gallon bucket is permitted any day, but only between 0700-1100 and 1900-2300.

**4.4.4.** Watering with a hand-held hose is allowed any time on any day.

**4.4.5.** Use of fountains, waterfalls, or other aesthetic water features — outdoors or indoors — is prohibited, unless a variance has been granted for 100 percent non-potable water use.

**4.4.6.** Installation of new landscape plantings or turf is prohibited unless included in contract deliverables, required to repair damage resulting from maintenance or construction actions, or authorized by the Base Civil Engineer. Irrigation of new turf or landscape outside of the allowed times requires Base Civil Engineer approval.

**4.4.7.** Irrigation of athletic fields is permitted only as required to maintain the turf viability/safety. Athletic fields may water between the hours of 0300-0800 and 2000-2200 once per week on the days from Table 2.

**4.4.8.** Government vehicle washing allowed twice a month, during the first (full) and third weeks.

**4.5. STAGE III RESTRICTIONS (OPR: ALL)**

**Water restrictions based on Commander Approval.**

**4.5.1.** Continue practices from Stage II, except as noted or replaced by Stage Three rules.

**4.5.2.** Landscape watering with an irrigation system, sprinkler or soaker hose is allowed every other week only from 0700-1100 and 1900-2300 on your designated watering day, as determined by your address or facility number in Table 2.

**4.5.3.** Watering with drip irrigation is allowed every Monday, Wednesday and Friday, but only from 0700-1100 and 1900-2300.

**4.5.4.** Watering with a hand-held hose is allowed any time on any day.

**4.5.5.** The use of yard pools, dunk tanks, or similar equipment is prohibited.

**4.5.6.** Athletic Fields continue practices from Stage II.

**4.5.7.** Fire hydrant and sewer line flushing is prohibited, except as necessary to accomplish repairs or for critical testing requirements. Routine fire hydrant and sewer line flushing should be scheduled during typical noncritical months (i.e., November-February).



**4.5.8.** Government vehicle washing allowed once per month, during the first full week of each month.

**4.5.9.** Restrict Civil Engineer ground crews and base residents from planting grass and plants except where absolutely essential.

#### **4.6. STAGE IV RESTRICTIONS (OPR: ALL)**

##### **Water restrictions based on Commander Approval.**

**4.6.1.** Continue practices from Stage III, except as noted.

**4.6.2.** Installation of new turf is prohibited.

**4.6.3.** Lawn/turf watering is prohibited.

**4.6.4.** Landscapes may be watered by a 1 inch diameter or less hand held garden hose, soaker hose, or a 5 gallon (or less) bucket every two weeks 0300-0800 and 2000-2200 on days from Table 2.

**4.6.5.** Athletic Fields may be watered once every two weeks between the hours of 0300-0800 and 2000-2200 once per week on the days from Table 2.

**4.6.6.** Government vehicle and POV washing not allowed except in extreme circumstances approved in advance by the Wing Commander or his/her designee.

#### **4.7. STAGE V RESTRICTIONS (OPR: ALL)**

The 502d Air Base Wing Commander or his/her designee will convene an emergency meeting of subject matter experts(SME) to consider appropriate emergency rules in addition to all previous prohibitions. SME's present should be at minimum the Base Civil Engineer, Natural Resource Manager, Water Quality Manager, Water/Sewer Utility Engineer, Maintenance Shop Supervisor, and the SJA Environmental Attorney, other parties at that time as needed or identified should also be present.

#### **5.0. REPORTING AND VIOLATIONS**

**5.1.** Water use restrictions will be enforced by the 502d Air Base Wing Commander or his/her designee.

**5.2.** Violations of this Plan should be reported to 210-221-3144 @ JBSA-Fort Sam Houston, 210-671-8339 @ JBSA-Lackland, & 210-652-3151 @ JBSA-Randolph.