



# **DROUGHT MANAGEMENT PLAN**

**Revised 10/14/08**

**Pagosa Area Water and Sanitation District  
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*San Juan River, 2002*

## Table of Contents

<b>Background.....</b>	<b>1</b>
<b>Relationship to Water Conservation.....</b>	<b>1</b>
<b>Drought Management Plan Introduction.....</b>	<b>2</b>
<b>District Wide Water Restriction Triggers.....</b>	<b>3</b>
Voluntary Water Conservation Level.....	4
Water Conservation Level 1.....	6
Water Conservation Level 2.....	7
Water Conservation Level 3.....	8
Water Conservation Level 4.....	9
<b>Financial Incentive: Rate Structures for Each Level.....</b>	<b>10</b>
<b>Penalties for Non-Compliance.....</b>	<b>10</b>

## **Section 1**

### **Background**

The Pagosa Area Water and Sanitation District (PAWSD), successor to the Pagosa Water and Sanitation District formed in 1971, was reorganized in 1977 to provide water and wastewater service to the Pagosa Springs, Colorado area, located in Archuleta County in the southwestern portion of the state. Through an inclusion election held in 1992, the Town of Pagosa Springs and areas served by the former Archuleta Water Company were successfully included into the District's boundaries for water service only, which nearly doubled the District's boundaries at that time. For reference purposes, the PAWSD service area is characterized as District One, which generally is the area west of Pagosa Springs, and District Two, generally the areas north, south, and east and including the Town of Pagosa Springs. Twenty-seven, full-time PAWSD personnel manage and operate approximately 290 miles of water line, 80 miles of sewer line, three water treatment facilities, two wastewater treatment facilities, and numerous water booster stations, pressure-reducing stations, and sewer pumping stations. The PAWSD service area encompasses approximately 76 square miles. PAWSD currently has 2900 acre-feet of existing usable raw water storage, with an additional 1150 acre-feet upon the completion of the enlargement of Stevens Reservoir.

Currently, PAWSD serves approximately 7,000 single-family equivalent units (EUs). The Colorado State Demographer estimates that Archuleta County has 12,600 full-time residents; however, PAWSD serves about 9,450 full-time residents, or about 75% of the County. It should be noted that this population number does not include District service to a very significant transient population associated with tourism and property owners who reside in the community only on a part-time basis. and are therefore not included in the published census data.

The predominate types of development served are residential and resort related commercial properties. District water service includes all potable treated water delivered through the central treatment and distribution system for domestic and commercial uses including residences, hotels and restaurants, shops, and other commercial enterprises. These categories also include lawns and other outdoor water uses associated with residential properties. Properties adjacent to some raw water reservoirs can be permitted, for a fee, to utilize the raw water for irrigation purposes.

## **Section 2**

### **Relationship to Water Conservation**

For many utilities, including the District, water conservation is an important component of overall water supply planning. Actions to reduce water requirements, reduce system losses and increase operating efficiencies are expected to result in many benefits to the District and its customers including lessening the impact of a drought on the water supply. The 2008 Water Conservation Plan describes in detail the programs, measures and implementation schedule that the District will employ through 2018 and serves as a complimenting document to this Drought Management Plan.

The District will closely monitor the effectiveness of the 2008 Water Conservation Plan. As the results become available over time, demand projections used in planning studies will be updated to reflect the savings being achieved and expected to be achieved from conservation measures. Thus, it is expected that this water conservation program will play an important role in future water supply planning and drought management. Both the Water Conservation and Drought Management Plans may be modified as needed.

A comprehensive description of the District's current water supply, storage and treatment facilities and capacity is provided in the 2008 Water Conservation Plan.

### **Section 3**

#### **Drought Management Plan Introduction**

Throughout history, the entire southwestern area of the United States has experienced periods of extended drought, when water reservoirs have been depleted and annual snow pack has been less than normal. The Pagosa Springs area most recently experienced drought in 2002. In addition to these natural phenomena, distribution issues can also adversely affect the delivery of potable water such as a major or series of minor leaks in the distribution system. Another area of concern is the contamination of raw water supply through manmade pollutants or natural biological agents. As you can see, wise management of our water resources is a many sided issue and prudent planning is our best tool in assuring our community of a safe and reliable source of domestic water.

The Board of Directors of the Pagosa Area Water and Sanitation District adopted a Water Conservation Master Plan in January of 2000. Through a number of events, including the completion of the San Juan River Diversion Pipeline and Water Treatment Plant Project and the 2002 drought, modifications to the Plan were made in 2004 in order to present a guideline for water conservation level indicators and drought management.

The 2004 Plan essentially had three components. The first of these components involved the establishment of specific "trigger points" to guide the Board and staff in determining the level of water conservation and drought management that might be necessary under certain circumstances. The second component of the Plan detailed the recommended guidelines for action during each level of water conservation and drought management and the third component included the financial incentive structure to be imposed during each level.

This Plan does not revise the drought management sections of the 2004 Plan; it merely separates the drought management components of the 2004 Plan from the water conservation components that were revised in 2008. This Drought Management Plan is a guideline for operations and management of water resources and actions during periods of low raw water supply. It is not intended to address the most severe drought and should such conditions exist, or should other conditions exist that affect the raw water supply, this Plan may be altered or amended by the Board of Directors. In addition, certain commercial and irrigation uses of the District's raw water resources are the subject of a separate contractual agreement, and the guidelines contained in this Drought Management Plan may only apply to such uses within the context of that agreement.

## **Section 4**

### **District Wide Water Restriction Triggers**

For this plan, a firm water supply is defined as “adequate raw water facilities incorporated with conservation measures to provide the normal water demand without mandatory restrictions, plus a one year supply safety margin”. A one year safety supply margin is defined as having a one year supply of current annual water demand in storage during the worst drought. Thus, the District’s goal is to have the estimated current year plus the anticipated next year’s raw water stored in its reservoirs. This philosophy makes our community more drought resistant and less prone to the water issues facing many communities in the nation.

This Drought Management Plan describes how to maximize the existing facilities to meet the firm water supply, and potential measures to be implemented if a one year safety supply margin cannot be provided.

Between March 1<sup>st</sup> and October 1<sup>st</sup>, if:

1. the percentage (ratio) derived by dividing the “combined useable capacity of Hatcher, Stevens, Pagosa, and Forest Lakes” by the “estimated annual demand for the current year” is less than the percentages below, and
2. the water supply into the reservoirs from Dutton Ditch and direct runoff does not appear to be adequate to fill the reservoirs,

then the following restrictions associated with percentages should be implemented:

- Ratio of 90% or less triggers Voluntary Status
- Ratio of 70% or less triggers Level One restrictions
- Ratio of 50% or less triggers Level Two restrictions
- Ratio of 40% or less triggers Level Three restrictions
- Ratio of 30% or less triggers Level Four restrictions

Restrictions would typically be triggered from March through October as conditions warrant. The application of this period of time restriction is at District discretion based on anticipation of runoff or any other unforeseen event causing loss or reduction to the District’s water supplies.

Water Conservation Levels apply to all District water customers and are further described in the following sections.

## **Section 4.1**

### **Voluntary Water Conservation Level**

The District will begin frequent observations of water levels in the reservoirs and direct flow rates in the river. Preliminary notification will begin to keep customers informed of current conditions. If conditions responsible for the water depletions continue, mandatory water restrictions may be forthcoming. The District shall request that voluntary water conservation methods be employed.

#### Specific Measures

Voluntary compliance with responsible outside water use is encouraged. Watering in the early morning hours or later in the evening is the most effective method of watering with the least amount of evaporative losses. Water slowly and thoroughly to encourage deep root growth. A lawn that is 'spoiled' by frequent shallow watering will require more water and be less resilient to drought conditions.

Let lawns and sod grow taller. Consider alternatives to big thirsty lawns.

All turf including new seed, sod or lawn watering with oscillating sprinkler systems should never be done during the warmest part of the day or during periods of high wind.

It's a good idea to plant native varieties of plants and other shrubs that don't need a lot of water. Use mulch in the garden and around shrubs to save moisture.

Consider drip irrigation systems or soaker hoses and keep these systems running efficiently. Repair or replace any leaky parts.

Manual application of gray water - water from bathing or washing - for watering plants, trees and shrubs is encouraged. (Be sure to comply with all local laws and regulations regarding water reuse.)

Use a broom or rake instead of water to remove leaves, clippings and debris from walkways, driveways, decks, gutters etc.

When washing clothes, use the load selector to match water level to size of the load. Full loads are the most efficient use of water and energy. Presoak heavily soiled items and use detergent sparingly.

Do only full loads in the dishwasher. Check all plumbing connections to make sure they are tight. Repair any leaks.

Washing vehicles should be done with a bucket of water, and use of water from an outside hose should always be controlled with a positive shut-off nozzle.

All businesses are encouraged to conserve water. Restaurants are encouraged to not serve water except at the request of the customer. Hotels could seek customer cooperation in reducing towel and sheet laundering.

Curtail water waste. Water waste is defined as: water pooling or flowing into barrow ditches, applying water to paved surfaces, failing to repair broken sprinkler heads, other irrigation equipment or potable water leaks, using water instead of a broom to clean paved surfaces, watering during rain or high wind and using excessive amounts of water. Water waste is always discouraged.

Other water conservation and responsible landscaping tips and information are available at the District office or online at [www.pawsd.org](http://www.pawsd.org).

## **Section 4.2**

### **Water Conservation Level 1**

Watering Days: Irrigation (both with treated water or raw water) of lawns, trees, shrubs, vegetables and flowers will be restricted to between the hours of 6:00 pm and 9:00 am of the following day. Watering days are determined by property address. Addresses ending in even numbers are allowed to water on even number calendar dates. Addresses ending in odd numbers are allowed to water on odd number calendar dates. For example; a property owner with an address of number 242 Water Ave. would be assigned watering days such as May 2, 4, 6, and could water in the early morning hours until 9:00 am and/or after 6:00 pm that evening. The intent of these watering hours is to allow flexibility for customers who work either late or early in the day. Likewise an odd numbered address could water either in the morning or evening hours on the odd days.

#### Specific Measures

Continue all measures initiated in the Voluntary Water Conservation Level.

No watering between the hours of 9:00 am and 6:00 pm on any day including watering days.

Manual application of gray water - water from bathing or washing - for watering plants, trees and shrubs is encouraged. (Be sure to comply with all local laws and regulations regarding water reuse.)

Flowers and vegetables may be watered with a hand-held hose or low-volume non-spray irrigation on any day.

Property owners with automatic sprinkler systems that require maintenance, timer setting, testing or any operation outside of watering hours, must notify the District office for permission. Testing during watering hours is highly encouraged.

Curtail water waste. Water waste is defined as: water pooling or flowing into barrow ditches, applying water to paved surfaces, failing to repair broken sprinkler heads, other irrigation equipment or potable water leaks, using water instead of a broom to clean paved surfaces, watering during rain or high wind and using excessive amounts of water. Water waste is always discouraged.

Vehicles may be washed at the owner's home on the designated watering day only with a bucket or a hose equipped with a positive shut-off nozzle between the hours of 6:00 pm and 9:00 am.

Power washing as an essential element of a business may be performed on any day or time of day but only so long as water waste does not occur.

Construction water may be used so long as there is no water waste.

Restaurants shall not serve water except at the request of the customer.

### **Section 4.3**

#### **Water Conservation Level 2**

Watering Days: Irrigation (both with treated water or raw water) of lawns, trees, shrubs, vegetables and flowers will be restricted to between the hours of 6:00 pm and 10:00 pm of the same day. Property addresses 1 – 399 may water on Monday and Thursday between the hours of 6:00 pm and 10:00 pm. Property addresses 400 – and up may water on Tuesday and Friday between the hours of 6:00 pm and 10:00 pm.

#### Specific Measures

Continue all measures initiated in the Voluntary Water Conservation Level.

Trees, shrubs, and flowers and vegetables may be watered by a hand-held hose or low-volume non-spray irrigation on assigned watering days between the hours of 6:00 pm and 10:00 pm.

All turf including new seed and sod may be watered only on watering days for 15 minutes per zone (or sprinkler head placement) between the hours of 6:00 pm and 10:00 pm.

Planting of new lawns from seed or sod is strongly discouraged.

Manual application of gray water - water from bathing or washing - for watering plants, trees and shrubs is encouraged. (Be sure to comply with all local laws and regulations regarding water reuse.)

Washing driveways and sidewalks is prohibited except for health or safety reasons.

Property owners with automatic sprinkler systems that require maintenance, timer setting, testing or any operation must comply with watering days and between the hours of 6:00 pm and 10:00 pm.

Water waste is prohibited. Water waste is defined as: water pooling or flowing into barrow ditches, applying water to paved surfaces, failing to repair broken sprinkler heads, other irrigation equipment or potable water pipes, using water instead of a broom to clean paved surfaces, watering during rain or high wind and using excessive amounts of water.

Vehicles may be washed at the owner's home on the designated watering day only with a bucket or a hose equipped with a positive shut-off nozzle between the hours of 6:00 pm and 10:00 pm.

Power washing as an essential element of a business may be performed on any day or time of day but only so long as water waste does not occur.

Construction water may be used so long as there is no water waste.

Restaurants shall not serve water except at the request of the customer.

Hotels shall not change sheets more often than every four days for guests staying more than one night.

#### **Section 4.4**

#### **Water Conservation Level 3**

Watering Day: (both with treated or raw water) of trees, shrubs, vegetables and flowers will be restricted to between the hours of 6:00 pm and 10:00 pm one day per week according to the following schedule. Property addresses 1 – 399 may water on Monday between the hours of 6:00 pm and 10:00 pm. Property addresses 400 and up may water on Friday between the hours of 6:00 pm and 10:00 pm.

#### Specific Measures

Continue all measures initiated in the Voluntary Water Conservation Level.

No outside water usage whether from treated or raw water sources will be allowed to water turf, lawns or sod.

Trees and shrubs may be watered by a hand-held hose or low-volume non-spray irrigation on watering day assigned according to property address between the hours of 6:00 pm and 10:00 pm.

Manual application of gray water - water from bathing or washing - for watering plants, trees and shrubs is encouraged. (Be sure to comply with all local laws and regulations regarding water reuse.)

Washing driveways and sidewalks is prohibited except for health or safety reasons.

Water waste is prohibited. Water waste is defined as: water pooling or flowing into barrow ditches, applying water to paved surfaces, failing to repair broken sprinkler heads, using water instead of a broom to clean paved surfaces, watering during rain or high wind and using excessive amounts of water.

Vehicles may be washed at the owner's home on the designated watering day only with a bucket or a hose equipped with a positive shut-off nozzle between the hours of 6:00 pm and 10:00 pm.

Power washing as an essential element of a business may be performed on any day or time of day but only so long as water waste does not occur.

Construction water may be used so long as there is no water waste.

Restaurants shall not serve water except at the request of the customer.

Hotels shall not change sheets more often than every four days for guests staying more than one night.

## **Section 4.5**

### **Water Conservation Level 4**

This is the most critical stage of water conservation; therefore, the most stringent measures for conservation will be enforced as follows.

#### Specific Measures

Continue all measures initiated in the Voluntary Water Conservation Level.

No outside water usage whether from treated or raw water sources will be allowed.

Manual application of gray water - water from bathing or washing - for watering plants, trees and shrubs is encouraged. (Be sure to comply with all local laws and regulations regarding water reuse.)

Washing driveways and sidewalks is prohibited except for health or safety.

Water waste is prohibited. Water waste is defined as: water pooling or flowing into barrow ditches, applying water to paved surfaces, failing to repair broken sprinkler heads, using water instead of a broom to clean paved surfaces, watering during rain or high wind and using excessive amounts of water.

Any non-essential use of water would be strongly discouraged except for instances of health and safety.

Restaurants shall not serve water except at the request of the customer.

Hotels shall not change sheets more often than every four days for guests staying more than one night.

Vehicle washing, at personal residences or commercial facilities, may be prohibited.

## **Section 5**

### **Financial Incentive: Rate Structures for Each Level**

Voluntary Water Conservation Level: Standard rate structure applies

Water Conservation Level 1: Standard rate structure applies with the addition of a Drought Surcharge per 1,000 gallons of use over 8,000 and up to 20,000 gallons of water per equivalent unit. The Drought Surcharge is increased per 1,000 for use over 20,000 gallons of water per equivalent unit.

Water Conservation Level 2: Two times the standard rate structure will apply to gallons used. The Drought Surcharge remains in place but is unchanged from that of Level 1.

Water Conservation Level 3: Three times the standard rate structure will apply to the gallons used. The Drought Surcharge remains in place but is unchanged from that of Level 1.

Water Conservation Level 4: Four times the standard rate structure will apply to the gallons used. The Drought Surcharge remains in place but is unchanged from that of Level 1.

## **Section 6**

### **Penalties for Non-Compliance**

Repeated failure to comply with watering restrictions and/or watering days could result in the District imposing penalties as specified in Section 10.4.1 of the District's Rules and Regulations. These violation charges will be added to the property owner's monthly water bill and if not paid in a timely manner, could result in the disconnection of service.

- |                   |   |
|-------------------|---|
| First Violation:  | Written warning, Water Conservation Level notification sheet delivered and educational information offered. |
| Second Violation: | \$100 fine, Water Conservation Level notification sheet delivered.  |
| Third Violation:  | \$250 fine, Water Conservation Level notification sheet delivered.  |
| Fourth Violation: | \$500 fine, Water Conservation Level notification sheet delivered.  |

**\*\*PLEASE NOTE THE ABOVE FEES AND USAGE STRUCTURES ARE SUBJECT TO CHANGE.**