



To: Colorado Water Conservation Board  
Attn: Ben Wade  
1313 Sherman St. Room 721  
Denver CO, 80203

From: Mat deGraaf – Pagosa Area Water and Sanitation District

Date: August 22, 2012

**RE: The Pagosa Area Water and Sanitation District's Drought Management Plan Update –  
PO#12000000079 – 95% Progress Report**

The Pagosa Area Water and Sanitations District (PAWSD or the District) is updating its Drought Management Plan in accordance with Colorado Water Conservation Board (CWCB) standards. The following is a synopsis of the work completed thus far, any obstacles encountered, and next steps to be taken. Section 7.0 is discussed in detail below.

Tasks	TASK COMPLETE (Y/N)
<b>7.0 Implementation and Monitoring</b>	Y
7.1 Mitigation Action Plan	Y
7.2 Monitoring of Drought Indicators	Y
7.3 Drought Declarations	Y
7.4 Implementation of Staged Drought Response Program	Y
7.5 Enforcement of Staged Drought Response Program	Y
7.6 Revenue Implications and Financial Budgeting Plan	Y
7.7 Monitoring Plan Effectiveness	Y

In terms of constructing the Plan, I felt that section 7.0 - Implementation and Monitoring - was the meat and potatoes of the effort thus far. Perhaps it just felt that way because the last mile is always the most difficult, but I found myself having to mentally play both the provider and consumer roles while establishing protocol to systematically follow prior to/during/and following a drought event.

The completion of 7.0 marks the end of initial Plan construction and the beginning of the editing process. Section 8.0 – Formal Plan Approval and Updates – is the last hurdle in this great effort. While I believe that the public review process will do much to improve the Plan, I also anticipate a good deal of work to arise from it.

It is anticipated that the final report detailing Section 8.0 and the work required to complete the Plan will be submitted by October 3, 2012.

Respectfully,

A handwritten signature in black ink, appearing to read 'M deGraaf', on a light-colored background.

Mat deGraaf  
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Below is Task 7.0 in its mostly complete form.

Table 12 addresses the specific measures /programs PAWSD is looking into as action items for drought mitigation.

The challenge PAWSD faces from the consumer's standpoint is the lack of comprehension about what water supply security entails. Water in general is difficult for the lay-person to understand. Once we move into more advanced conversations about water, water supply, and water use, most people get lost which can easily turn onto frustration. From the beginning I have been constructing the plan in such a way that the average consumer will be able to follow and understand all of the plan components.

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## 7.0 Implementation and Monitoring

### 7.1 Drought Mitigation Action Plan

The table below shows current actions and projects that PAWSD is engaged in to increase the security and understanding of the water supply system and provide mitigation of the effects of drought.

**Table 12 – Drought Mitigation Actions, Steps, Milestones, and Administration**

List of Drought Mitigation Actions	Steps to Implementation	Milestone Deadlines	Entities/Staff responsible for Administration
Water Conservation Plan	follow plan	to be updated 2013	Water Conservation Coordinator
Connect San Juan WTP to the reservoirs	complete installation of pump and plant upgrade	Summer 2013	Operation Superintendent/Project Manager
Snowball Pipeline	engineering/EIS	pending engineering estimates and USFS review	Project Manager
Fourmile Creek stream flow gauge	purchase and install	Spring 2013	Operations Superintendent
Infrastructure Leak Detection	field time	on-going	Utility Infrastructure Superintendent
Demand side Leak Detection	utilize AMI system	on-going	Water Conservation Coordinator

### 7.2 Monitoring of Drought Indicators

As described in section 5.2, the monitoring and recording of the water supply is critical in understanding the dynamics of the water supply as well as in predicting the potential and severity of drought.

**Table 13 – Drought Indicators, Resources, Information Location, Monitoring, and Administration**

Drought Indicator	Information Resource	Information Location	Monitoring Frequency	Entities/staff responsible for Administration
Snow Water Equivalent (SWE)	NRCS	<a href="http://www.wcc.nrcs.usda.gov">www.wcc.nrcs.usda.gov</a>	April 1 - June 1	Water Conservation Coordinator
Precipitation	NRCS	<a href="http://www.wcc.nrcs.usda.gov">www.wcc.nrcs.usda.gov</a>	April 1 - November 1	Water Conservation Coordinator
San Juan Stream Flow	USGS	<a href="http://waterdata.usgs.gov">http://waterdata.usgs.gov</a>	April 1 - November 1	Water Conservation Coordinator
Fourmile Creek Stream Flow	Not Available	Not Available	April 1 - November 1	Water Conservation Coordinator
Reservoir Levels	PAWSD staff	S://Water Plant Production/Historical Lake Levels.xls	April 1 - November 1	Utility System Operator/Water Conservation Coordinator

It is important that knowledge and insights gained through conditions monitoring be cataloged and shared. Beginning April 1 of each year, the Water Conservation Coordinator shall begin collecting and recording current water supply conditions, the main components of which are highlighted below.

**Table 14 – Conditions Monitoring Schedule**

Conditions Monitoring Schedule	
<b>1-Apr</b>	Water Supply Availability forecast <ul style="list-style-type: none"> <li>- Snowpack (% of average)</li> <li>- Snow Water Index</li> <li>- Reservoir levels</li> <li>- San Juan stream flow (% of average)</li> </ul> Use mountain snowpack conditions to begin forming relevant press releases
<b>1-May</b>	Continue Water Supply Availability monitoring <ul style="list-style-type: none"> <li>- Snowpack (% of average)</li> <li>- Snow Water Index</li> <li>- Reservoir levels</li> <li>- San Juan stream flow (% of average)</li> <li>- Fourmile Creek diversion</li> </ul> Use current conditions to promote water conservation Communicate current observed water supply conditions to the Board of Directors Appropriate and timely press releases
<b>1-Jun</b>	Continue Water Supply Availability monitoring <ul style="list-style-type: none"> <li>- Snowpack (% of average)</li> <li>- Snow Water Index</li> </ul>

	<ul style="list-style-type: none"> <li>- Reservoir levels</li> <li>- San Juan stream flow (% of average)</li> <li>- Fourmile Creek diversion</li> </ul> <p>Use current conditions to promote water conservation</p> <p>Communicate current observed water supply conditions to the Board of Directors</p> <p>Begin discussions about potential implementation of the appropriate drought stage based upon Trigger Points</p> <p>Begin efficient irrigation community awareness campaign</p> <p>Continue appropriate and timely press releases and radio ads</p>
<b>1-Jul</b>	<p>Continue Water Supply Availability monitoring</p> <ul style="list-style-type: none"> <li>- Reservoir levels</li> <li>- San Juan stream flow (% of average)</li> <li>- Fourmile Creek diversion</li> </ul> <p>Use current conditions to promote water conservation</p> <p>Communicate current observed water supply conditions to the Board of Directors</p> <p>Implementation of appropriate drought stage based upon Trigger Points (if applicable)</p> <p>Continue efficient irrigation community awareness campaign</p> <p>Continue appropriate and timely press releases and radio ads</p>
<b>1-Aug</b>	<p>Continue with the efforts shown above until such a time as concerns of drought and water supply availability have past.</p>

It should be noted that reservoir levels are collected and recorded as long as seasonally feasible which is generally March – December.

### 7.3 Drought Declarations

Guidelines used by staff to evaluate drought conditions –

It is the role of the Water Conservation Coordinator, under supervision from the Special Project Manager, to ensure that the above mentioned drought indicators are monitored and formally recorded beginning April 1 and concluding November 1 of each year.

Guidelines to evaluate drought conditions

A worksheet has been developed that allow staff to enter current reservoir levels and water inflow from the Fourmile Creek and San Juan diversions as well as estimated demand through the water year. With these data sets in place the worksheet will calculate the amount of water available and will prompt the user when a trigger point threshold has been crossed.

Once a trigger point threshold has been crossed, the PAWSD General Manager must be made immediately aware. It is the responsibility of the PAWSD General Manager to present these findings to the PAWSD Board of Directors.

It is the responsibility of the PAWSD Board of Directors to formally declare a drought thereby allowing the District to begin efforts to reduce water demand. This announcement should be made at the next scheduled public Board meeting. A special meeting may be called should the current situation warrant such immediacy.

#### 7.4 Implementation of the Staged Drought Response Program

It is the role of the Water Conservation Coordinator, under supervision from the Special Project Manager, to implement the staged drought response plan. Once the elements of the plan are put into motion an “all hands deck” approach is to be employed by all PAWSD staff wherein each staff member will have a role in implementing the Plan. Administrative and Field staff will be briefed on the current situation and how their responsibilities and duties may be modified to achieve the demand reduction goal stated within each level drought severity.

The Special Projects Manager will ensure that the current drought status and any accompanying water use restrictions will be made public knowledge by utilizing the local media outlets as well as direct customer mailing and statement inserts when applicable.

At the outset of each drought stage, the Water Conservation Coordinator shall provide PAWSD staff with a handout detailing the current drought stage and the water use restriction therein so as to ensure everyone is on the same page and all public communication is accurate and consistent.

#### 7.5 Enforcement of the Staged Drought Response Plan

PAWSD customers will be made aware of the current drought situation and any corresponding mandatory water use restrictions as described in section 6.0. Repeated failure to comply with watering restrictions and/or watering days could result in PAWSD 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.

With each violation it is the duty of the Office Manager to notify the property owner in writing of the violation, the date of the occurrence, as well as any resulting fine. All notifications will be sent to the address on record.

**Table 15 – Non-compliance**

Non-Compliance Violation	LEVEL 1	LEVELS 2 -5
	Voluntary	Low to Severe
FIRST	not applicable	Written warning and Water Conservation Level notification sheet delivered.

<b>SECOND</b>	not applicable	\$100 fine, Water Conservation Level notification sheet delivered.
<b>THIRD</b>	not applicable	\$250 fine, Water Conservation Level notification sheet delivered.
<b>FORTH</b>	not applicable	\$500 fine, Water Conservation Level notification sheet delivered.

NOTE: The fees for non-compliance are subject to change.

## 7.6 Revenue Implications and Financial Budgeting Plan

It is commonly understood that a reduction in water demand is generally followed by a reduction in revenue. It is also true that there is a relationship between price and demand in that as the price increases, the demand generally decreases. In light of this, PAWSD may impose a drought surcharge to accomplish two things –

1. Reduce water demand
2. Ensure financial stability during times of decreased water deliveries

It is PAWSD's goal to avoid undue hardship or unfair restrictions upon those already working to conserve water. For this reason each water customer will be allowed up to 8000 gallons per month (per EU) free of additional charges related to drought. A customer who uses in excess of 8000 gallons/EU within a billing period will be subject to structured water rate increases as detailed below.

**Table 16 – Drought Surcharge/Water rate adjustment**

Tier	Gallons/EU	Level 1	Level 2	Level 3	Level 4	Level 5
1	<b>0-8000</b>	n/a	n/a	n/a	n/a	n/a
2	<b>9000-20,000</b>	n/a	surcharge only	2x standard rate structure	3x standard rate structure	4x standard rate structure
3	<b>21,000+</b>	n/a	surcharge only	2x standard rate structure	3x standard rate structure	4x standard rate structure

Financial incentive for water conservation

Level 1 - Voluntary: Standard rate structure applies. No surcharge will be added.

Level 2 - Low: Standard rate structure applies with the possible 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.

Level 3 - Moderate: Two times the standard rate structure will apply to gallons used in excess of 8000 (per EU) within a single billing period. The Drought Surcharge remains in place under the same structure as Level 2.

Level 4 - Serious: Three times the standard rate structure will apply to the gallons used in excess of 8000 (per EU) within a single billing period. The Drought Surcharge remains in place under the same structure as Level 2.

Level 5 - Severe: Four times the standard rate structure will apply to the gallons used in excess of 8000 (per EU) within a single billing period. The Drought Surcharge remains in place under the same structure as Level 2.

Businesses wherein the control of water use is not regulated by the property owner (i.e. Hotels, Car Washes, etc.) may appeal to PAWSD for a reduction or waiver of drought surcharge increases so long as the business can show that it is doing everything within its power to encourage water conservation at all levels.

The funding to implement, monitor, and manage the numerous components of the drought management plan will come from the PAWSD general fund for operations. It is not anticipated that revenue shortfalls due to the effectiveness of community water demand reductions during a time of drought should ever result in permanent water rate increases.

#### 7.7 Monitoring of Plan Effectiveness

Should the Drought Management Plan be employed in a time of water scarcity, the overall effectiveness of the Plan will be gauged by whether or not the demand reduction goals were achieved. This will be determined by comparing the most current monthly water sold amount to historic averages from the same month. The public outreach and clear and timely messaging are the key components to ensure community support. PAWSD is committed to ensuring that all customers will be well informed of the drought stage, the accompanying water use restrictions, the demand reduction goal, and why these steps are necessary.

Under the direction of the Special Projects Manager, following a drought event where water use restrictions were mandated, PAWSD will host a public forum to solicit comments so as to gauge the perception of the overall effectiveness of the plan and the way in which it was employed. Community feedback from this meeting will be used to strengthen the Plan.