



CITY CLERK'S OFFICE  
*Agenda*  
DATE 11/30/16 TIME 10:49-  
SERVED BY Christine Chavez  
RECEIVED BY [Signature]

**SANTA FE WATER CONSERVATION COMMITTEE MEETING**  
**CITY HALL - 200 LINCOLN AVE.**  
**CITY COUNCILORS' CONFERENCE ROOM**  
December 13, 2016  
4:00 PM TO 6:00 PM

1. CALL TO ORDER
2. ROLL CALL
3. APPROVAL OF AGENDA
4. APPROVAL OF MINUTES FROM THE NOVEMBER 15, 2016 MEETING

**INFORMATIONAL ITEMS:**

5. SOURCE OF SUPPLY – Drought Update (Alex Puglisi, 20 minutes)
6. INTEGRATED WATER STRATEGIES (Justin Lyon, 20 minutes)
7. STORMWATER IRRIGATION: A COMPARISON OF SOIL MOISTURE AT CURB CUTS WITH AND WITHOUT RAIN GARDENS (Aaron Kauffman, 20 minutes)
8. GROUP REPORTS FROM WATER CONSERVATION COMMITTEE WORKING GROUPS
  - A. GROUP A - Irrigation Rebate and QWEL (10 minutes)
  - B. GROUP B - Expansion of the K-12 Education Program (10 minutes)
  - C. GROUP C – Scorecard (10 minutes)
  - C. GROUP D - Water Conservation Codes, Ordinances and Regulations (Doug Pushard – 10 minutes)

**MATTERS FROM PUBLIC:**

**MATTERS FROM STAFF:**

**MATTERS FROM COMMITTEE:**

**NEXT MEETING – TUESDAY JANUARY 10, 2017:**

**CAPTIONS: DECEMBER 27, 2016 @ 3 PM.**

**PACKET MATERIAL: DECEMBER 28, 2016 @ 3 PM.**

**ADJOURN.**

Persons with disabilities in need of accommodations, contact the City Clerk's office at 955-6520, five (5) working days prior to meeting date.

SANTA FE WATER CONSERVATION COMMITTEE  
MEETING INDEX  
November 15, 2016

| Item   |   | Page |
|--|---|------|
| Call to Order  | Ms. Randall, Acting Chair of the Water Conservation Committee called the meeting to order at 4:02 p.m. at the Water Division Conference Room. | 1    |
| Roll Call  | A quorum was established at 4:07 p.m.   | 1    |
| Approval of Agenda   | Mr. Michael moved to approve the agenda as amended with a second from Mr. Coombe which passed by voice vote.                                  | 1    |
| Approval of Minutes from the September 13, 2016 WCC Meeting  | Mr. Coombe moved to approve the minutes of September 13, 2016 as presented with a second from Mr. Lyon which passed by voice vote.            | 1    |
| Approval of Minutes from the October 4, 2016 WCC Meeting   | Mr. Lyon moved to approve the minutes of October 4, 2016 as amended with a second from Mr. Kauffman which passed by voice vote.               | 1    |
| ACTION ITEMS: <ul style="list-style-type: none"> <li>2017 Meeting Schedule</li> <li>RESOLUTION AMENDING THE MEMBERSHIP REQUIREMENTS OF THE SANTA FE WATER CONSERVATION COMMITTEE SO THAT A RESIDENT OF SANTA FE COUNTY IS APPOINTED TO THE MEMBERSHIP AND TO CLARIFY TERM LIMITS OF THE MEMBERSHIP</li> </ul>  | Mr. Lyon moved to approve the 2017 meeting schedule with a second from Mr. Coombe which passed by voice vote.                                 | 1,2  |
|  | Mr. Lyon moved to approve the Resolution with a second from Mr. Coombe which passed by voice vote.  | 2    |
| INFORMATIONAL ITEMS: <ul style="list-style-type: none"> <li>SOURCE OF SUPPLY</li> <li>FOREST FIRE AND WATERSHED CONNECTION</li> <li>NEXT GENERATION WATER SUMMIT</li> <li>GROUP REPORTS FROM WATER CONSERVATION COMMITTEE WORKING GROUPS</li> <li>GROUP A Irrigation Rebate and QWEL</li> <li>GROUP B Expansion of the K-12 Education Program</li> <li>GROUP C Water Conservation Codes, Ordinances and Regulations</li> </ul> | Discussion Only   | 3    |
|  |   | 3    |
|  |   | 3,4  |
|  |   | 4    |
|  |   | 4    |
|  |   | 4    |
|  |   | 4    |
| MATTERS FROM THE PUBLIC  | Discussion Only   | 4    |
| MATTERS FROM STAFF   | Discussion Only   | 5    |
| MATTERS FROM COMMITTEE   | Discussion Only   | 5    |
| NEXT MEETING: Tuesday December 13, 2016<br>Captions: November 28, 2016<br>Packet Material: November 30, 2016 at 3 p.m.   | Discussion Only   | 5    |
| ADJOURN  | There being no further business to come before the Santa Fe Water Conservation Committee the meeting was adjourned at 5:48 p.m.               | 5    |
| SIGNATURES   |   | 5    |

SANTA FE WATER CONSERVATION COMMITTEE MEETING  
PARAGUA CONFERENCE ROOM 2<sup>ND</sup> FLOOR  
801 WEST SAN MATEO SANTA FE, NM  
November 15, 2016  
4:00 p.m. to 6:00 p.m.

**1. CALL TO ORDER**

Ms. Randall, Acting Chair of the Water Conservation Committee called the meeting to order at 4:02 p.m. at the Water Division Conference Room. A quorum was established at 4:07 p.m.

**2. ROLL CALL**

**PRESENT:**

Lisa Randall, Acting Chair  
Robert D. Coombe  
Stephen K. Wiman  
Aaron T. Kauffman  
Justin Lyon  
Tim Michael  
Doug Pushard  
Bill Roth

**NOT PRESENT/EXCUSED:**

Councilor Peter Ives

**OTHERS PRESENT:**

Christine Y. Chavez, Water Conservation Manager  
Caryn Grosse, Water Conservation Specialist  
Alan Hook, City Water Division  
Rick Carpenter, City Water Division  
Linda Vigil for Fran Lucero, Stenographer

**3. APPROVAL OF THE AGENDA**

Ms. Chavez stated Mr. Puglisi will not be able to attend tonight to present the drought update.

**MOTION:** *Mr. Coombe moved to approve the agenda as amended with a second from Mr. Wiman which passed by voice vote.*

**4. APPROVAL OF MINUTES SEPTEMBER 13, 2016 WATER CONSERVATION COMMITTEE MEETING**

**MOTION:** *Mr. Coombe moved to approve the minutes of September 13, 2016 as presented with a second from Mr. Kauffman which passed by voice vote.*

**5. APPROVAL OF MINUTES OCTOBER 4, 2016 WATER CONSERVATION COMMITTEE MEETING**

Ms. Chavez stated the minutes should reflect Mr. Coombe was excused.

**MOTION:** *Mr. Lyon moved to approve the minutes of October 4, 2016 as amended with a second from Mr. Kauffman*

which passed by voice vote.

## **ACTION ITEMS:**

### **6. 2017 MEETING SCHEDULE**

Ms. Chavez stated there is not a place to hold the meeting in November. (See Exhibit A) Ms. Randall mentioned there is a meeting place close by she can offer.

Mr. Tim Michael arrived.

**MOTION:** Mr. Lyon moved to approve the 2017 meeting schedule with a second from Mr. Coombe which passed by voice vote.

### **7. RESOLUTION AMENDING THE MEMBERSHIP REQUIREMENTS OF THE SANTA FE WATER CONSERVATION COMMITTEE SO THAT A RESIDENT OF SANTA FE COUNTY IS APPOINTED TO THE MEMBERSHIP AND TO CLARIFY TERM LIMITS OF THE MEMBERSHIP**

Ms. Chavez stated the term limits have not changed. The language is for terms for new members. (See Exhibit B)

Ms. Chavez discussed the addition of the language to allow a County resident to become a member of the Commission. This item will go to Public Utilities and then on to City Council. She would like to fill the two vacant positions by the end of the year.

Mr. Doug Pushard arrived.

Mr. Lyon would like to know if there is a specific background they need to have. Ms. Chavez would not mind speaking to the person interested to explain the duties.

**\*Mr. Michael brought to the attention of the Chair that the amount of members in attendance tonight does not constitute a quorum. (The amount should be 6 members since it is a 10 member committee) There is a quorum now so votes will have to be retaken.**

**MOTION:** Mr. Michael moved to approve the agenda as amended with a second from Mr. Coombe which passed by voice vote.

**MOTION:** Mr. Coombe moved to approve the minutes of September 13, 2016 as presented with a second from Mr. Lyon which passed by voice vote.

**MOTION:** Mr. Lyon moved to approve the minutes of October 4, 2016 as amended with a second from Mr. Kauffman which passed by voice vote.

Ms. Chavez discussed the county member cannot serve as Chair of the committee, although the language does not specify. Mr. Pushard mentioned there is another resolution cited in it that may state that language.

Mr. Bill Roth arrived.

**MOTION:** Mr. Lyon moved to approve the Resolution with a second from Mr. Coombe which passed by voice vote.

Mr. Coombe stated there was an item in the news about the County working with the Pueblos on an item.

Mr. Carpenter explained the idea is to form a Governing Body to work on the Admat issue.

#### **INFORMATIONAL ITEMS:**

#### **8. SOURCE OF SUPPLY-Drought Update**

This item will be discussed in December.

#### **9. FOREST FIRE AND WATERSHED CONNECTION**

Mr. Hook, presented a slide show explaining the Watershed and the agreement with the Santa Fe National Forest Service to show the watershed zones that will be managed. (*See Exhibit C*)

Mr. Hook presented copies of a map from the Forest Service showing the areas treated. There will be a smoke management plan during the fire season.

Ms. Randall mentioned the system the school uses to reach the parents and community with notifications.

Mr. Roth asked about the area in the Pecos Wilderness and how it would be cleared. Mr. Hook stated there is a large area to clear and to get there is difficult, there is a technique they use to drop ignitors by helicopter.

Mr. Kauffman asked about the water yield study. Mr. Hook stated it is ongoing.

Mr. Roth asked about the opening of the area. Mr. Hook stated it is an order by the Federal Government.

#### **10. NEXT GENERATION WATER SUMMIT June 4-6 2017**

Mr. Pushard presented a slideshow (*See Exhibit D*) explaining the partners and the events. Training will be held at the SFCC the week prior and there will be a Green Expo before as well.

This will be a good platform for homebuilders and architects to learn water conservation practices.

Mr. Pushard explained the training at the SFCC that involved the WERS program. There will be greywater trainings and QWEL Auditor Training as well. The SFCC is a partner for the training.

Mr. Pushard explained the day designated for the public, there will be booths and workshops available.

There will be a film and an opening event. There will be three tracks on various topics.

Ms. Randall asked about the save the date list and responses. Mr. Pushard will send to the Committee to get the word out about the summit.

A brief discussion was held about the different trainings that are scheduled. There is a possibility of having a conference annually.

Mr. Pushard stated the cost for the event Sunday will be free. The opening event and training days will be \$299 for the early registration and \$499 the day it begins.

The Conference committee will meet on Friday if any other member would like to attend.

## **11. GROUP REPORTS FROM WATER CONSERVATION COMMITTEE WORKING GROUPS**

### **A.) GROUP A – Irrigation Rebate and QWEL**

Ms. Chavez explained all committees have had to pull back a while since the vacancy in her department. Ms. Grosse has filled the vacancy and her old position will be open.

Ms. Chavez reported that a large task Ms. Grosse has worked on is a self-audit guide and a homeowner guide on how to put in an irrigation system. Once it is finalized the local partners will endorse it and hand out to the public. Once that is all done the rebate will be worked on.

Ms. Chavez stated the QWEL class will begin in the spring at SFCC.

### **B.) GROUP B – Expansion of the K-12 Education Program**

Mr. Kauffman reported the water fiesta was a huge success. There was over 200 students and there was discussion of possibly expanding the event to the older groups. Mr. Kauffman and Ms. Chavez met with the ECO school in October, where they were invited them to meet with teachers to integrate sustainability.

Ms. Chavez would like to meet with various city departments and start a larger program where there are tours of each department. It will be put it together for the spring.

### **C.) GROUP C – Water Conservation Codes, Ordinances and Regulations**

Mr. Pushard reviewed his notes. (See Exhibit E) Mr. Pushard reported City Council approved WERS as part of the green build code.

Mr. Pushard reported the Chapter 25 re-write is still on going.

Mr. Pushard reported the ICC draft will include public comments and placed in a new draft version.

Mr. Pushard reported on the selection by EPA to select the City of Santa Fe for a pilot city. Ms. Melissa McDonald worked on it.

Mr. Pushard explained SF County will be changing their land use code to apply WERS.

Mr. Pushard announced the call in for the college water efficiency turf study and the call in number and code.

Mr. Roth discussed the change to the Green Code its currently for single family residential. The next step will be for Multi Family and then Commercial. The WERS Tool can score mutli-family with no issues.

Mr. Rother stated land use and water are putting in the code the ability for a developer to get a density increase. If it works it could become a feature for the single family resident. It will have to come through this committee and sustainability.

## **MATTERS FROM THE PUBLIC**

Mr. Wiman on behalf of Andy Otto and the Santa Fe Watershed announced their annual holiday event on December1, 2016 at Hotel Santa Fe from 5:30-8:00 p.m. it is a fundraiser.

## **MATTERS FROM STAFF**

Ms. Chavez reported Ms. Grosse's promotion once again. They attended the WERS course and thought it was a great class. The test was difficult, but they will work on audits. Mr. Roth offered his home for an audit.

Ms. Chavez stated the scorecard committee has not met due to a lack of time.

Ms. Grosse announced the zeroscape summit is in February at the Sheraton.

## **MATTERS FROM COMMISSIONERS**

Ms. Randall briefly mentioned the upcoming bond for the master facilities plan there will be monies for lighting retrofits, water catchment systems and solar projects.

## **NEXT MEETING – TUESDAY DECEMBER 13, 2016**

## **ADJOURN**

There being no further business to come before the Santa Fe Water Conservation Committee the meeting was adjourned at 5:48 p.m.

## **SIGNATURES**

\_\_\_\_\_  
Lisa Randall, Acting Chair

A handwritten signature in black ink, appearing to read 'L. Vigil', written over a horizontal line.

Linda Vigil, for Fran Lucero Stenographer

**City of Santa Fe, Source of Supply Section/Water Division  
Water Production Update - through November 28th  
Public Utilities Committee Meeting  
December 7, 2016**

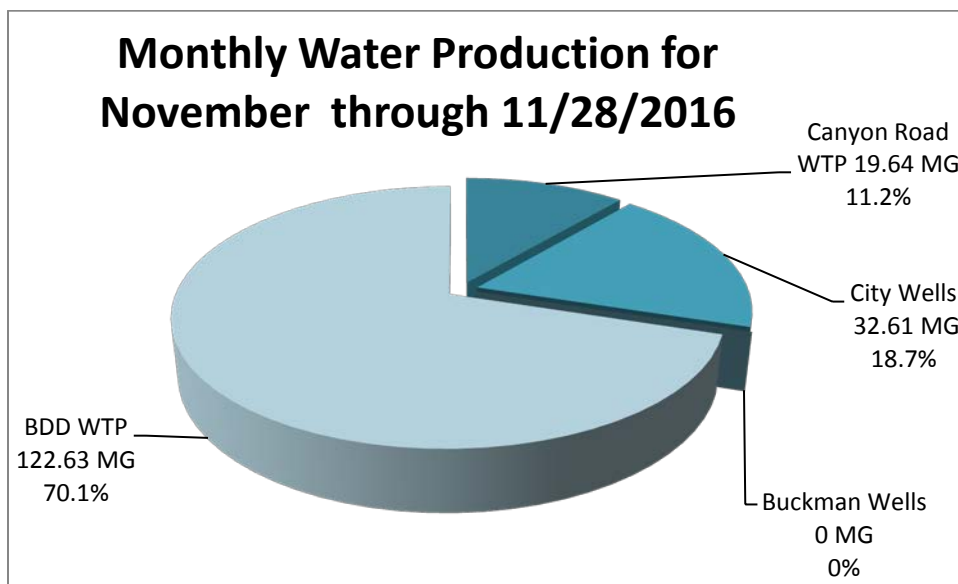
**Old Filter Plant Site**

Several neighborhood groups and associations have been informed of the transfer of use of this site from the Water Division to the Parks and Recreation Division. A meeting with “public stakeholders” is planned by the Water Division in conjunction with the Parks and Recreation Divisions in early December. A possible “Adopt-a-Park” arrangement with residents of the Canyon Road area has already been preliminarily discussed.

**Water Production for November (through 11/26/2016)**

Water production at the Canyon Road Water Treatment Plant (CRWTP) decreased significantly from previous months due to continued shutdown of the CRWTP to implement CIP projects, including the Master Control Center (MCC) relocation, asbestos tile removal and replacement, and other upgrades during mid to late October and early November. Total Production at the CRWTP through November 28<sup>th</sup> was 19.634 MG. The plant was completely offline through November 15th and is slowly being brought back to a constant winter production level. The Buckman Regional WTP produced 122.63 MG for the first 28 days of November, or an average of 4.38 MGD. Total production for the first 28 days of the month from all sources was approximately 174.9 MG. Production from all individual sources are illustrated in the chart below. Average daily usage (customer demand) during the month of August was down significantly from October (9.04 MGD). November consumption levels averaged 6.25 MGD in comparison to the previous month.

Nichols Reservoir storage levels have increased to 51.27% (111.47 MG) from to 107.6 MG (49.92% storage). The storage level of McClure Reservoir has also increased slightly to 194.2 MG, or 17.82% of capacity, due to the CRWTP being offline, and Living River and irrigation releases to the Santa Fe River below Nichols decreasing to a winter daily flow of 0.3 MGD (**Living River Planned Release only**). The combined storage level for both reservoirs is 305.65 MG, which reflects a current reservoir storage level of 23.40%. Santa Fe River inflows to McClure Reservoir are currently at 0.97 MGD with an average of 0.70 MGD for the month.





### **Baca Street Well**

The site is currently being investigate and remediated under the State of New Mexico's Petroleum Corrective Action Fund. (CAF). Contaminant concentration results for monitoring wells have been submitted by PNM to the New Mexico Environment Department's Petroleum Storage Tank Bureau NMED-PSTB. However, water level maps for wells at the site are still under preparation. NMED-PSTB granted PNM a thirty (30) day extension to submit all appropriate information so that NMED and the City would like to review both well contaminant concentrations and water level maps in concert with each other to understand the nature and extent of contamination at the site.

### **Downtown Ground Water Investigation**

Conversations with NMED about the recently discovered sites contaminated with Volatile Organic Compounds (VOCs) are continuing, especially in light of newly proposed "Vapor Intrusion" regulations recently introduced to the NM Water Quality Control Commission by the agency and the finalization of the "Hawley Report" with regards to the PNM Baca Street site which discussing geologic formations and groundwater flow and influences within the City.

### **Drought/Monsoon, Storage, and ESA Update**

NOAA has recently updated (11/10/16) ENSO (El Nino/La Niña) status to: **La Niña conditions are present and slightly favored to persist (~55% chance) during winter 2016-17.** Dry conditions in 2016/17 could present significant challenges to all water purveyors, water utilities, and irrigators if there is not significant filling and carry-over storage in regional reservoirs. Regional reservoir levels on the Rio Grande and Chama Rivers are still low. Upper Santa Fe River reservoirs are low so City draw down has been reduced accordingly, with a corresponding increase in BDD diversions from the Rio Grande, and moderate increases in groundwater well use. Preliminary estimates are for an approximate 95%-100% delivery of full firm-yield of San Juan-Chama Project (SJCP) water. There are no water-related Endangered Species Act (ESA) updates. Updates on ESA issues will be made as needed. Rio Grande Compact Article VII storage restrictions went back into effect 4/22/16, which means the City will not be allowed to impound "native" runoff into Nichols and McClure Reservoirs above the pre-Compact pool of 1,061 acre-feet (AF) (unless an exchange for water is made with the NMISC). Updates to this condition will be made as needed.

### **Current City of Santa Fe October, 2016 SJCP Reservoir Storage:**

Heron:

5,029 AF. 2016 deliveries are at about 95% of annual total.

El Vado:

1,236 AF.

Abiquiu:

10,481 AF SJCP carry-over from previous years, no time limit to vacate due to storage agreement with ABCWUA

**TOTAL: 16,746 AF**

# Irrigation System Self-Audit



## Applicant Details: *(please print clearly)*

|                  |                      |
|------------------|----------------------|
| Water Account #: | <input type="text"/> |
| Customer Name:   | <input type="text"/> |
| Contact Person:  | <input type="text"/> |
| Phone:           | <input type="text"/> |
| Email:           | <input type="text"/> |

## Installation Address:

|             |                      |
|-------------|----------------------|
| Street :    | <input type="text"/> |
|             | <input type="text"/> |
| City/State: | <input type="text"/> |
| Zip code:   | <input type="text"/> |

## Mailing Address: *(if different from above)*

|             |                      |
|-------------|----------------------|
| Address:    | <input type="text"/> |
|             | <input type="text"/> |
| City/State: | <input type="text"/> |
| Zip code:   | <input type="text"/> |

Landscape irrigation accounts for about 38% of the water used in Santa Fe each year. Many homeowners have already converted their lawns to xeriscape and replaced sprinkler systems with drip irrigation, but leaks and/or over-watering can still waste water and money without contributing to the beauty of your yard.

This kit is designed to help you self-audit your home irrigation system to see if improvements can be made which can save money and water. While an irrigation audit may seem like a complicated process, these instructions are designed to help you work your way through the process one step at a time, with pictures and forms built into the instruction booklet.

As a thank you for taking the time to do this self-audit, when you return the kit and a copy of your completed audit, you will receive a **<soil moisture sensor or rain sensor?>**, which can be added on to most types of controllers to further reduce over-watering.

Place Vendor Logo Here

## Irrigation System Self-Audit Instructions

### Self-audit kit contents:

- |                                     |  |
|-------------------------------------|--|
| 25 catch cans                       | instruction booklet                            |
| 1 soil probe                        | 1 stop watch                                   |
| 1 pressure gauge (with attachments) | 1 rain gauge                                   |
| 1 Rainbird green screwdriver        | 1 clipboard                                    |
| 1 Hunter adjustment tool            | 25 pink "problem" flags                        |
| 1 screwdriver                       | 60 flags (15 each of green, blue, red, yellow) |

### Step 1: Record Existing Settings

Use the enclosed clipboard to hold this booklet, make sure you have a pen or pencil and go find your irrigation controller (often located in the garage.) If you know where your controller manual is, it will be helpful to take it with you.

Record the current settings below; start times and watering days (run days).



#### Controller Settings

| Current Run Days (circle) |   |   |    |         |    |    |         |   |   |         |   |    |    |  |
|---------------------------|---|---|----|---------|----|----|---------|---|---|---------|---|----|----|--|
| M                         | T | W | Th | F       | Sa | Su | M       | T | W | Th      | F | Sa | Su |  |
| Current Start Times       |   |   |    | 1 _____ |    |    | 2 _____ |   |   | 3 _____ |   |    |    |  |

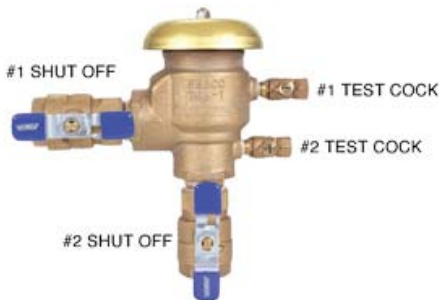
### Step 2: Measure Water Pressure

1. Locate your backflow prevention device (typically on the side of the house.)
2. Thread the pressure gauge into the #1 test cock.
3. Using the standard screwdriver, slowly open the test cock by turning the screw.
4. If you cannot make a connection to the backflow device, use the hose spigot attachment. Thread it as you would a hose and open the spigot to measure pressure.
5. Record two pressures:

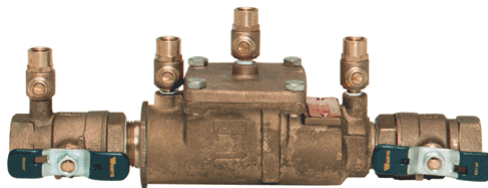
Static pressure: (sprinklers turned off)

Operating pressure: (sprinklers turned on)

6. Slowly close the test cock and remove the gauge.



*Pressure Vacuum Breaker  
(old technology, not approved for new  
irrigation systems)*



*Double Check Valve  
(most common for residential irrigation  
systems)*



*Reduced Pressure Double Check Valve  
(typically used for commercial irrigation  
systems)*

### Step 3: Inspect Each Zone

1. Starting with Zone 1, turn on each zone and inspect the heads or emitters and observe the watering patterns.
2. Some controllers have a “test” mode that activates each zone for a selected test time. If not, manually turn on each zone for 5 minutes. Place a flag next to each sprinkler head or drip emitter. Use a different colored flag for each zone.
3. Place pink flags where you find broken heads, clogged emitters or other problems.
4. Record observed problems on the Zone Evaluation Checklist on the next page.
5. On the Audit Results chart on page 7, record the type(s) of heads. Spray heads have a fixed pattern and rotors move from side to side. High efficiency rotary nozzles have individual streams that rotate.

## Zone Evaluation Checklist

| Observed Problems      | Zone # |   |   |   |   |   |   |   |   |    |    |    |
|------------------------|--------|---|---|---|---|---|---|---|---|----|----|----|
|                        | 1      | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Low Pressure           |        |   |   |   |   |   |   |   |   |    |    |    |
| High Pressure          |        |   |   |   |   |   |   |   |   |    |    |    |
| Mixed Head Type        |        |   |   |   |   |   |   |   |   |    |    |    |
| Broken Head(s)         |        |   |   |   |   |   |   |   |   |    |    |    |
| Clogged Nozzle         |        |   |   |   |   |   |   |   |   |    |    |    |
| Tilted Head            |        |   |   |   |   |   |   |   |   |    |    |    |
| Low/Sunken Head        |        |   |   |   |   |   |   |   |   |    |    |    |
| Improper Arc or Radius |        |   |   |   |   |   |   |   |   |    |    |    |
| Overspray              |        |   |   |   |   |   |   |   |   |    |    |    |
| Obstructions           |        |   |   |   |   |   |   |   |   |    |    |    |
| Low Head Drainage      |        |   |   |   |   |   |   |   |   |    |    |    |
| Underground Leak       |        |   |   |   |   |   |   |   |   |    |    |    |
| Comments               |        |   |   |   |   |   |   |   |   |    |    |    |

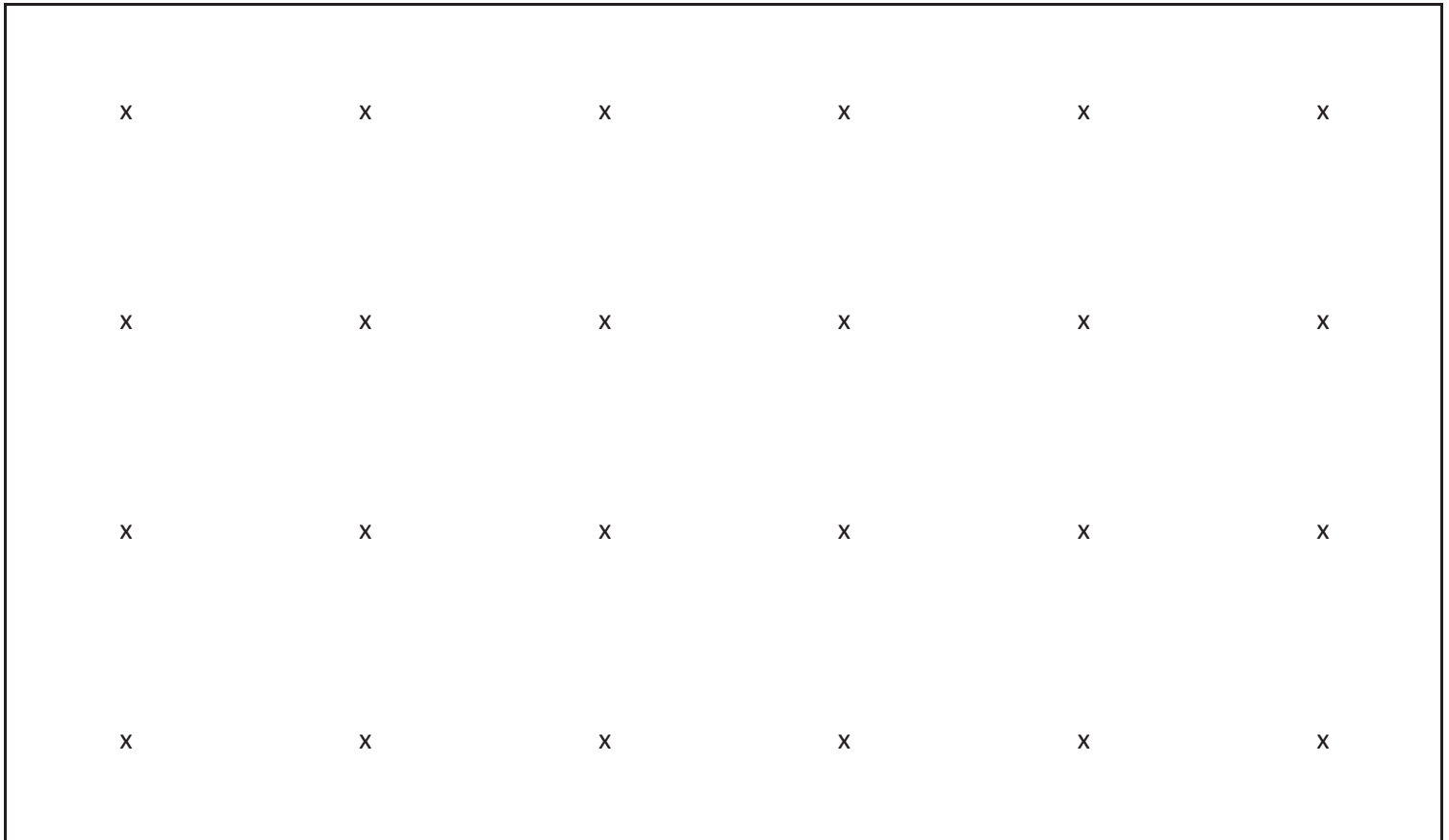


#### Step 4a: Catch Can Test for Sprinklers

A catch can test is used to collect data which is used to calculate the precipitation rate (PR) and the distribution uniformity (DU). PR indicates how fast the sprinklers are applying water, measured in inches. DU measures how evenly the system applies water over the lawn.

1. Select an area for the catch can test. More than one zone can be done as long as the head type is the same in both zones.
2. For sprinklers, set out 24 catch cans in a grid six rows by four rows. Place the catch cans about two feet away from sprinkler heads and for drip emitters, place the cans right under the emitters.
3. Run a zone for 5 minutes (10 minutes for a rotor zone). If more than one zone waters the selected area, run the first zone for the suggested time and then the second zone for the same time and so on, without moving or emptying the catch cans.
4. Start the stop watch when the heads are fully pressured.
5. Shut off the zone precisely on time.
6. On the Catch Can Data chart (see next page), record the amount of water in each catch can at the corresponding point.
7. Observe the areas that receive less water—they may show stress or brown spots.
8. Empty catch cans and repeat for additional zones.

#### Sprinkler Catch Can Diagram



Run Time \_\_\_\_\_ min.

# Catch Cans \_\_\_\_\_

Total Water (inches) \_\_\_\_\_

Total Water/# Catch Cans = Total Average \_\_\_\_\_

Drip irrigation zones can be evaluated by placing the catch cans at the beginning, quarter, halfway, three-quarter and end of each lateral line. This will check the uniformity of water distribution along the line. Be careful when placing the catch can that the water does not run back along the tubing instead of into the container.

1. Select an area for the catch can test. More than one zone can be done as long as the emitter type is the same in both zones.
2. Make a sketch of the drip line layout showing the lateral lines with drippers, dimensions of the zone and locations where the catch cans are placed. Take photos. Allow room to write in the data measurements.
3. Place the catch cans right under the emitters.
4. Run a zone for 10 minutes. If more than one zone waters the selected area, run the first zone for the suggested time and then the second zone for the same time and so on, without moving or emptying the catch cans.
5. On the Catch Can Data chart (below), record the amount of water in each catch can at the corresponding point.
6. Observe the areas that receive less water—they may show stress or brown spots.
7. Empty catch cans and repeat for additional zones.

## A full-page view of a blank sheet of white graph paper. The grid consists of thin, light gray horizontal and vertical lines forming small squares. There are 20 columns and 15 rows of squares. A thicker gray border surrounds the entire grid area.

## # Catch Cans

$$\text{Total Water}/\# \text{ Catch Cans} = \text{Total Average}$$

**Catch Can Data**

|           |           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|-----------|
| 0.15<br>x | 0.18<br>x | 0.12<br>x | 0.22<br>x | 0.24<br>x | 0.20<br>x |
| 0.05<br>x | 0.08<br>x | 0.09<br>x | 0.11<br>x | 0.32<br>x | 0.12<br>x |
| 0.04<br>x | 0.05<br>x | 0.06<br>x | 0.09<br>x | 0.20<br>x | 0.13<br>x |
| 0.02<br>x | 0.02<br>x | 0.07<br>x | 0.16<br>x | 0.16<br>x | 0.12<br>x |

Run Time 5 min. # Catch Cans 24

Total Water (inches) 3.0

Total Water/# Catch Cans = Total Average 0.125

Example of Sprinkler Catch Can Diagram

### Step 5: Calculate Precipitation Rate and Distribution Uniformity

1. Add up the total amount of water in all the catch cans. This is the total water in inches over the audited area.
2. Divide this number by the number of catch cans used for the Total Average.
3. Circle the six lowest values and add them together to find the Low Quarter.
4. Divide the Low Quarter total by the number of catch cans (six); this is the Low Quarter Average.

Run Time \_\_\_\_\_ min. # Catch Cans \_\_\_\_\_

Total Water (inches) \_\_\_\_\_

Total Water/# Catch Cans = Total Average \_\_\_\_\_

Low Quarter (LQ) Total \_\_\_\_\_

# Catch Cans Low Quarter \_\_\_\_\_

Low Quarter Total/# LQ Catch Cans = Low Quarter Average \_\_\_\_\_

### Precipitation Rate (PR)

- Use the formulas below to calculate precipitation rate.

$$PR = \frac{\text{Total Average} \times 60 \text{ min}}{\text{Run Time (RT)}}$$

If RT is 5 min., PR = Total Average x 12 = \_\_\_\_\_ in./hr.

If RT is 10 min., PR = Total Average x 6 = \_\_\_\_\_ in./hr.

DU =  $\frac{\text{Low Quarter Average}}{\text{Total Average}}$  = \_\_\_\_\_ or \_\_\_\_\_ %

### Sprinkler Run Time To apply .5 inches (minutes)

| Precipitation<br>Rate | Run Time |      |
|-----------------------|----------|------|
|                       | Low      | High |
| 0.20                  | 108      | 120  |
| 0.25                  | 87       | 96   |
| 0.30                  | 72       | 80   |
| 0.35                  | 62       | 69   |
| 0.40                  | 54       | 60   |
| 0.45                  | 48       | 53   |
| 0.50                  | 43       | 48   |
| 0.55                  | 40       | 44   |
| 0.60                  | 36       | 40   |
| 0.65                  | 33       | 37   |
| 0.70                  | 31       | 34   |
| 0.75                  | 29       | 32   |
| 0.80                  | 27       | 30   |
| 0.85                  | 25       | 28   |
| 0.90                  | 24       | 27   |
| 0.95                  | 22       | 25   |
| 1.00                  | 21       | 24   |
| 1.05                  | 20       | 23   |
| 1.10                  | 20       | 22   |
| 1.15                  | 19       | 21   |
| 1.20                  | 18       | 20   |
| 1.25                  | 17       | 19   |
| 1.30                  | 16       | 18   |
| 1.35                  | 16       | 18   |
| 1.40                  | 15       | 17   |
| 1.45                  | 15       | 17   |
| 1.50                  | 14       | 16   |
| 1.55                  | 13       | 1    |
| 1.60                  | 13       | 15   |
| 1.65                  | 13       | 15   |
| 1.70                  | 12       | 14   |
| 1.75                  | 12       | 14   |
| 1.80                  | 11       | 13   |
| 1.85                  | 11       | 13   |
| 1.90                  | 11       | 13   |
| 1.95                  | 11       | 12   |
| 2.00                  | 11       | 12   |
| 2.10                  | 10       | 11   |
| 2.20                  | 1        | 11   |
| 2.30                  | 9        | 10   |
| 2.40                  | 9        | 10   |
| 2.50                  | 9        | 10   |

## Distribution Uniformity (DU)

Enter your DU in the chart below.

**Distribution Uniformity**

|                  | Excellent | Good    | Fair    | Your System |
|------------------|-----------|---------|---------|-------------|
| <b>Sprayhead</b> | .75-.90   | .55-.70 | .40-.50 |             |
| <b>Rotor</b>     | .80-.90   | .65-.75 | .50-.60 |             |

### Step 6: Calculate Run Times

1. Enter the PR for each zone tested on the Audit Sheet under Data.
2. On the Sprinkler Run Time chart, locate the PR in the left hand column. Find the Run Time recommended range, from Low to High.
3. In the Recommendations column under Run Time on the Audit Sheet, record the low and high times.
4. If a zone has partial or full shade, revise the run time under Adjusted Run Time.
5. Since clay soil can only absorb about  $\frac{1}{4}$  inch of water per hour, divide the run time into two cycles.
6. Enter these times into the Run Time per Start column.
7. Now you know how long to water to apply  $\frac{1}{2}$  inch. Typically, run the system once in the spring and fall and twice during most of the summer. Add a third day when the weather is hot and dry.
8. Enter a Run Time per Start for zones that were not tested by using the Run Times from similar zones (spray or rotor) and adjusting for shade.

### Audit Results

| Zone | Existing        |   |                                    |                                    | Data               | Watering Schedule   |   |                                    |
|------|-----------------|---|------------------------------------|------------------------------------|--------------------|---------------------|---|------------------------------------|
|      | Run Time (min.) |   | Head Type                          | Exposure                           | Precipitation Rate | Run Time (min.)     | Adjusted Run Time (min.)                | Run Time per Start (2 start times) |
|      | A               | B | Spray<br>Rotor<br>Drip<br>MP Rotor | Sun<br>Partial Shade<br>Full Shade | (inches/hour)      | (to apply 1/2 inch) | 25% (partial shade)<br>50% (full shade) | (to apply 1/4 inch)                |
| 1    |                 |   |                                    |                                    |                    |                     |   |                                    |
| 2    |                 |   |                                    |                                    |                    |                     |   |                                    |
| 3    |                 |   |                                    |                                    |                    |                     |   |                                    |
| 4    |                 |   |                                    |                                    |                    |                     |   |                                    |
| 5    |                 |   |                                    |                                    |                    |                     |   |                                    |
| 6    |                 |   |                                    |                                    |                    |                     |   |                                    |
| 7    |                 |   |                                    |                                    |                    |                     |   |                                    |
| 8    |                 |   |                                    |                                    |                    |                     |   |                                    |
| 9    |                 |   |                                    |                                    |                    |                     |   |                                    |
| 10   |                 |   |                                    |                                    |                    |                     |   |                                    |
| 11   |                 |   |                                    |                                    |                    |                     |   |                                    |
| 12   |                 |   |                                    |                                    |                    |                     |   |                                    |

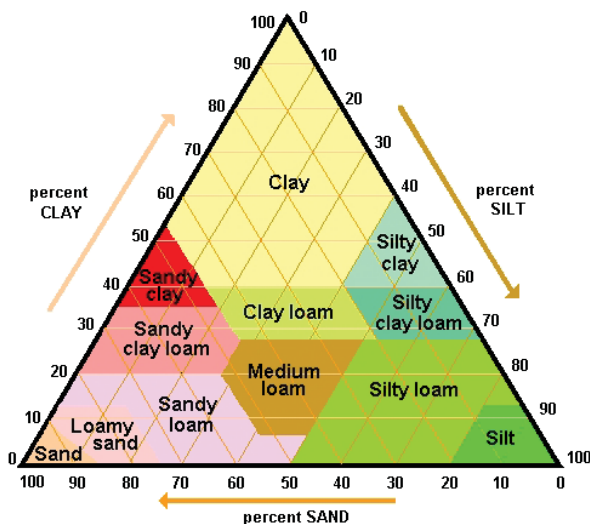


### Step 7: Take a Soil Sample

Drip irrigation systems, in particular, depend upon the soil to move and store water. Soil is made up of sand, silt and clay particles. The percentage of these three particles is what determines soil type and how much water the soil can hold and how much water will be available to the plants.

1. Push the soil probe into the soil without twisting; twist it back and forth to remove a sample.
2. It's easiest to take the sample from a zone where you did the catch can test so the soil is moist.
3. With a screwdriver, separate the soil textures while looking for fine hair-like roots in the soil.
4. Use a ruler to measure the length of the roots and record below:

5. Place the soil sample in a quart jar with water and a few drops of dish soap. Shake the jar until the soil particles are suspended in the water and then allow to settle.
  - a. Sand will settle in just a few minutes.
  - b. Silt will settle on top of the sand in two to three hours.
  - c. Clay will settle on top of the silt in about 24 hours.
  - d. Some clay particles and organic matter will not settle at all.
6. Measure the layers and determine percentage of each type.



For example, a soil that is 40 percent sand, 40 percent silt and 20 percent clay is classified as medium loam.

Sandy soil has a low value for available moisture, clay soil has a moderately high value and loam has the highest available soil moisture. Organic matter, such as compost, added to the soil can help to improve the moisture capacity of the soil.



### Step 8: Program Controller

1. Add up all the times in the Run Time per Start column. This is the time it takes to complete one watering cycle.
2. Enter a start time into the controller. Preferably, begin watering after midnight. When a complete cycle ends, enter a second start time to water the additional cycle.
3. For example, if the entire sprinkler cycle runs for 90 minutes, enter two start times in the controller; one at 2 a.m. and the second at 4 a.m. This waters the entire lawn's first  $\frac{1}{4}$  inch, waits a half hour while the water is absorbed and applies the second  $\frac{1}{4}$  inch.
4. If recommended run times are higher than your current run times, you may have other factors contributing to your efficiency. These are guidelines —you may be able to water less.
5. Monitor the appearance of your grass and adjust the run times up or down a few minutes for each zone.



**City of Santa Fe**  
**Water Conservation Office**  
**Education Program Resource Guide**

For more information visit:

[www.santafenm.gov](http://www.santafenm.gov)

[www.savewatersantafe.gov](http://www.savewatersantafe.gov)

Contact:

[wcoffice@santafenm.gov](mailto:wcoffice@santafenm.gov)

505-955-4225

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## **MISSION STATEMENT**

The City of Santa Fe Water Conservation Comprehensive Education Program is a collaboration of several city entities and their outreach programs to educate 4<sup>th</sup> grade students on where their water comes from, how it is treated, where wastewater goes and how it is treated and recycled and how recycling and energy play a role. While each entity has an outreach program of its own joining forces will allow the student a much richer experience in the coordinated activity than each one by itself. By educating these students on the “value” of water in every aspect, conserving that resource should be a natural next step.

## **OVERVIEW**

The Comprehensive Education Program will allow a 4<sup>th</sup> grade classroom to travel the “path” of water. The program will begin with a tour of the watershed so that the students can gain perspective on where their water comes from. The next stop will be a tour of the Buckman Direct Diversion to get a better understanding of how surface water is treated before it is distributed into the drinking water supply. Three in-class presentations will then be given on the energy – water nexus, recycling and water conservation. The last step will be a tour of the Wastewater Treatment Plant where the students will learn about where their wastewater goes and how it’s treated and reused. All participating classes will also get an automatic reservation to attend our annual Children’s Water Fiesta. The students will be given a passport book with details on each part of the program and a place for them to document their experience and each participating partner will stamp their passport book as they go through that part of the program. The program is to be completed between the months of September through May. All program details will be coordinated with participating teachers and schools by City of Santa Fe Water Conservation Staff and all costs associated with transportation will be covered by the participating City of Santa Fe programs. Each part of the program is aligned with the Common Core Standards and the students will be assessed before and after each activity and before and after the program in its entirety.

## **ACKNOWLEDGMENTS**

The City of Santa Fe Water Conservation Office would like to acknowledge the Santa Fe Water Conservation Committee for its help in getting this program off its feet. Ideas were surveyed from 4<sup>th</sup> grade teachers who attended our 2016 Children’s Water Fiesta that were of tremendous value. Buckman Direct Diversion, Sustainable Santa Fe, City of Santa Fe Wastewater Treatment Plant, Keep Santa Fe Beautiful and Water Resources are the participating city partners who worked together on this collaboration and are to be commended for making resources available for this program.

|  |          |                      |          |      |
|--|----------|----------------------|----------|------|
| Component/City Partner: <b>Watershed Tour, City of Santa Fe Watershed Outreach Program</b>   |          |                      |          |      |
| <p>Description:</p> <p><b>This tour is an experiential, hands-on, science based education program for fourth grade classrooms. This program provides a classroom session introducing watersheds and methods used to evaluate the health of an environment. This is followed by hike out to the watershed to investigate, explore and collect data. The program culminates in a classroom session to evaluate and interpret their data along with exploring ideas for water conservation. The activities are aligned with common core standards and benchmarks. Additional activities and evaluations are made available for teachers prior to and/or following the final classroom visits.</b></p> <p><b>Some extra coordination may be required with this activity due to situations which might arise that will affect the ability to gain access to the watershed. Students are asked to dress accordingly and to wear close toed comfortable shoes suitable for walking.</b></p> |          |                      |          |      |
| Activity Type: <b>In class presentation and field trip with bus transportation provided to and from the watershed</b>  |          |                      |          |      |
| Duration: <b>One hour for in class presentation; 1/2 day tour</b>  |          |                      |          |      |
| <p>Student Expectations Prior to Attendance:</p> <ul style="list-style-type: none"> <li>• <b>Key terms: Watershed, wild-fire management, source protection and reservoir</b></li> <li>• <b>Key concepts: Students should have a basic understanding of how water is collected in a watershed and where it comes from and also how it is stored</b></li> </ul>  |          |                      |          |      |
| <p>Outcome/Learning Objectives:</p> <p><b>Students should become more educated on how and why snow is important in the winter and how it affects our water supply. The importance of soils in the watershed and watershed health should become more important as it becomes evident that those things affect the amount of water stored for our drinking water supply when it runs off the mountain and is collected in the reservoirs.</b></p>  |          |                      |          |      |
| <p>Common Core Standards:</p> <p><b>CCSS.ELA-Literacy.W.4.1, CCSS.ELA-Literacy.RI.4.5, CCSS.ELA-Literacy.SL4.1.A, CCSS.ELA.Literacy.L.4.4</b></p>  |          |                      |          |      |
| Reading  | Writing  | Speaking & Listening | Language | Math |
| <b>X</b>   | <b>X</b> | <b>X</b>             | <b>X</b> |      |

|   |         |                      |          |          |
|---|---------|----------------------|----------|----------|
| Component/City Partner: <b>Water Treatment, Buckman Direct Diversion</b>  |         |                      |          |          |
| <p>Description:</p> <p><b>The field trip begins with an in-class presentation lasting 30-45 minutes that includes a hands-on activity and discussion. Safety and rules and guidelines for the tour will be discussed at this time. The tour will then begin at the raw storage/ pre-sedimentation basin which stores up to 8 million gallons of raw water. Students will learn about the process of getting water from the river to the treatment plant. This part of the tour will address the disposal of solids that have settled as a result of this process. The tour will then proceed to Flash Mix and Flocculation/ Sedimentation. Students will tour the Advanced Treatment Facility and learn about membrane filtration, ozone and biofiltration. BDD is the only facility in New Mexico that provides these advanced processes to be able to provide a very high quality water for Santa Fe. The students will see a booster station and will tour the Operator's Control room to see how the entire facility is monitored. The last stop is the Laboratory where students will discuss the testing and sampling required of the system.</b></p> |         |                      |          |          |
| Activity Type: <b>Field trip</b>  |         |                      |          |          |
| Duration: <b>Three hours with bus transportation provided to and from the Buckman Direct Diversion Plant</b>  |         |                      |          |          |
| <p>Student Expectations Prior to Attendance:</p> <ul style="list-style-type: none"> <li>• <b>Key terms: Sedimentation</b></li> <li>• <b>Key concepts: Students should have a basic understanding of where their water comes from and what the different sources are; surface water from the Rio Grande, surface water from the Santa Fe River, city well field and Buckman well field. Each source requires a different sort of treatment before it is considered of drinking water quality.</b></li> </ul>   |         |                      |          |          |
| <p>Outcome/Learning Objectives:</p> <p><b>The tour provides perspective on how surface water is treated to drinking water standards. The BDD has advanced treatment processes unique to New Mexico.</b></p>   |         |                      |          |          |
| <p>Common Core Standards:</p> <p><b>CCSS.ELA-Literacy.RI.4.7; CCSS.ELA-Literacy.SL.4.1.A; CCSS.ELA-Literacy.L.4.4; CCSS.Math.Content.4.MD.A.1</b></p>   |         |                      |          |          |
| Reading   | Writing | Speaking & Listening | Language | Math     |
| <b>X</b>  |         | <b>X</b>             | <b>X</b> | <b>X</b> |

|   |         |                      |          |          |
|---|---------|----------------------|----------|----------|
| Component/City Partner: <b>Water-Energy Nexus, Sustainable Santa Fe</b>   |         |                      |          |          |
| <p>Description:</p> <p><b>This activity introduces the energy-water nexus. All energy sources, including electricity and sources such as fuel, oil and natural gas require water in their production. This is an in-class presentation with a hands on activity and discussion.</b></p> <p><b>The students start by learning about energy basics such as what energy is, how it is formed and where it comes from? Students will learn about energy sources (gasoline, electricity, natural gas) and their uses. The presentation includes information about energy use basics, energy units and the advantages and disadvantages of using different water sources.</b></p> |         |                      |          |          |
| Activity Type: <b>In class presentation</b>   |         |                      |          |          |
| Duration: <b>One hour</b>   |         |                      |          |          |
| <p>Student Expectations Prior to Attendance:</p> <ul style="list-style-type: none"> <li>• <b>Key terms: energy, kilowatt hour, therm</b></li> <li>• <b>Key concepts: Students should be able to define energy nexus in their own terms and be able to describe different sources of energy including solar, wind, electricity, etc.</b></li> </ul>  |         |                      |          |          |
| <p>Outcome/Learning Objectives:</p> <p><b>Energy plays a big role in water and wastewater treatment and water distribution. Energy and water also play a big role in the food we consume and the materials and goods that we buy. It is impossible to discuss any aspect of water without establishing the equal importance of energy of efficiency as one resource affects the other.</b></p>  |         |                      |          |          |
| <p>Common Core Standards:</p> <p><b>CCSS.ELA-Literacy.RF.4.4; CCSS.ELA.Literacy.SL.4.1; CCSS.Math.Content.4.MD.A.1</b></p>  |         |                      |          |          |
| Reading   | Writing | Speaking & Listening | Language | Math     |
| <b>X</b>  |         | <b>X</b>             |          | <b>X</b> |

|   |         |                      |          |      |
|---|---------|----------------------|----------|------|
| Component/City Partner: <b>Recycling, Keep Santa Fe Beautiful</b>   |         |                      |          |      |
| Description:<br><b>Recycling Saves Water:</b> This program focuses on calculating the amount of water that recycling saves based on the total tons of commodity that gets collected in Santa Fe's recycling program. This two part activity demonstrates how much water production uses and then how much is saved through recycling. A recycling activity is also set up to have students "sort" through trash that is potentially recyclable which will educate students on how to most appropriately do it in their homes. It is also a chance for the program to showcase the new roll out carts and the increased recycling potential for city households. |         |                      |          |      |
| Activity Type: <b>In class presentation</b>   |         |                      |          |      |
| Duration: <b>One and a half hours long</b>  |         |                      |          |      |
| Student Expectations Prior to Attendance: <ul style="list-style-type: none"> <li>• <b>Key terms: recycling</b></li> <li>• <b>Key concepts: Students should become familiar with the City's recycling program and have an idea of what things can be recycled in their new roll out bins</b></li> </ul>  |         |                      |          |      |
| Outcome/Learning Objectives:<br><b>Connecting every day activities like recycling to water conservation gives students ideas about other things that can be done to save water besides things like turning off the water when they are brushing their teeth. Every day choices and behaviors can be modified to save water.</b>   |         |                      |          |      |
| Common Core Standards:<br><b>CCSS.ELA-Literacy.W.4.2.A; CCSS.ELA-Literacy.SL.4.1.C; CCSS.Math.Content.4.NBT.A.1</b>   |         |                      |          |      |
| Reading   | Writing | Speaking & Listening | Language | Math |
|   | X       | X                    |          | X    |



|   |         |                      |          |      |
|---|---------|----------------------|----------|------|
| Component/City Partner: <b>Water Conservation, City of Santa Fe Water Conservation Office</b>   |         |                      |          |      |
| <p>Description:</p> <p><b>The Water Conservation Program will be using an Enviroscape model that demonstrates where the City's drinking water comes from, how it is treated, what different sources of wastewater come out of the home and where it goes and how it is treated and re-used. The model will do a good job in tying the entire program together as it briefly demonstrates every component in this program. The students enjoy the interactive display and the use of different media to demonstrate different parts of the model. All students enrolled in the program are also automatically registered to attend the annual Children's Water Fiesta. This is a one day event where the students will rotate through a series of five classes. Demonstrations in the past have been provided by Sandia National Labs, Los Alamos National Laboratory, New Mexico Office of the State Engineer and many others. All of the City Partners in this program will also be providing an activity at this event.</b></p> |         |                      |          |      |
| Activity Type: <b>In class presentation for the enviroscape model and then one day attendance at the Children's Water Fiesta with transportation being provided to and from the Convention Center.</b>  |         |                      |          |      |
| Duration: <b>One hour for in class presentation; four hours for Water Fiesta</b>  |         |                      |          |      |
| <p>Student Expectations Prior to Attendance:</p> <ul style="list-style-type: none"> <li>• <b>Key terms:</b> aquifer, ground water, surface water, biosolids</li> <li>• <b>Key concepts:</b> Students should have a basic understanding of the water cycle and be able to discuss the different sources of our drinking water.</li> </ul>  |         |                      |          |      |
| <p>Outcome/Learning Objectives:</p> <p><b>The model brings together the different aspects of the program on a small scale basis. After the students have the opportunity to tour the watershed and treatment facilities they'll have gained perspective with these overlapping lessons. The Children's Water Fiesta is the programs strongest education effort in place. With over 650 students attending last year we accomplished a great deal of outreach pertinent to water conservation in a two day span. Attendance is limited and so automatic registration is a huge benefit to the classroom.</b></p>   |         |                      |          |      |
| Common Core Standards:<br><b>CCSS.ELA.Literacy.SL.4.1.A; CCSS.ELA-Literacy.L.4.6</b>  |         |                      |          |      |
| Reading   | Writing | Speaking & Listening | Language | Math |
| <b>X</b>  |         | <b>X</b>             | <b>X</b> |      |

|   |         |                      |          |          |
|---|---------|----------------------|----------|----------|
| Component/City Partner: <b>Waste Water Treatment, City of Santa Fe Wastewater Management</b>  |         |                      |          |          |
| <p>Description:</p> <p><b>The City of Santa Fe's Wastewater Treatment facility treats wastewater for use throughout the City. In this section of the education program, students will get a tour of the facility and learn about the treatment process and how wastewater gets from their homes to the facility. Students will learn about how water is treated by touring the head works, bar screen, cyclone grit separator, wet wells, aerated grit chamber, primary clarifiers, bio selectors, aerations basin and secondary clarifiers. Students will also be introduced to the tertiary treatment process which includes ultraviolet lighting for final treatment. The tour will end with a stop at the outfall located at the end of the wastewater plant. All the water that has been treated leaves the plant to receiving waters downstream from the plant. The students will learn about where this water goes and how it is reused for irrigation throughout the city through a purple pipe system. We ask that children be dressed accordingly and in layers and that closed toe shoes are worn.</b></p> |         |                      |          |          |
| Activity Type: <b>Field trip with bus transportation to and from the Santa Fe Wastewater Treatment Plant</b>  |         |                      |          |          |
| Duration: <b>Two hours</b>  |         |                      |          |          |
| <p>Student Expectations Prior to Attendance:</p> <ul style="list-style-type: none"> <li>• <b>Key terms: effluent, purple pipe, potable and non-potable water</b></li> <li>• <b>Key Concepts: Students should have an understanding of the different sources of wastewater in their home such as water that goes down the toilets, showers, sinks, laundry machines, dish washers, etc.</b></li> </ul>   |         |                      |          |          |
| <p>Outcome/Learning Objectives:</p> <p><b>Students should gain appreciation of where wastewater goes that leaves their home and the benefit of treating wastewater to tertiary standards to be used for irrigation that normally would require drinking water as an irrigation source. Students should also be able to identify several different city properties that are irrigated with treated effluent through a purple pipe system.</b></p>  |         |                      |          |          |
| <p>Common Core Standards:</p> <p><b>CCSS.ELA-Literacy.SL.4.1.A; CCSS.ELA-Literacy.L.4.1; CCSS.Math.Content.4.NF.B.3</b></p>   |         |                      |          |          |
| Reading   | Writing | Speaking & Listening | Language | Math     |
|   |         | <b>X</b>             | <b>X</b> | <b>X</b> |

# City of Santa Fe, New Mexico

# memo

**Date:** December 8, 2016

**To:** Santa Fe Water Conservation Committee *copy*

**From:** Christine Y. Chavez, Water Conservation Manager

**RE:** Water Conservation Program Scorecard

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## **Background:**

A white paper was presented to the Santa Fe Water Conservation Committee in August of 2016 as guidance for the Scorecard subcommittee on development of a balanced scorecard for the Water Conservation Program. Because of the help of the subcommittee we were able to move forward with a draft of the scorecard that we will be considering in more detail in January's Water Conservation Committee meeting. The committee first began by looking at the City of Santa Fe Water Division goals that were established in December 2010. Though the goals might be somewhat outdated it was decided that alignment with the department goals should be of importance. We began by creating an outline of the goals with a list of specific water conservation initiatives that supported that specific goal.

## **City of Santa Fe Water Division: Mission, Goals and Objectives**

1. Buckman Direct Diversion Project Goal
  - Education outreach partners
2. Capital Facilities Goal
  - Green Building Code – WERS
  - Lead by Example component
3. Communications Goal
  - Strategic Marketing Plan – has its own measurement plan for targeted outreach
  - Water Ion Customer Portal
  - New Radio Show
4. Customer Service Goal
  - Indoor and Outdoor audits
  - Assistance with rebates
  - Badger Ion customer calls on leaks
  - QWEL classes and QWEL lite classes
5. Facilities Operation and Maintenance Goal
  - Demo Garden
  - Solar Project Work

6. Financial Resources and Budget Goal
  - FY Plan
  - Budget planning early Spring
7. Human Resources Goal
  - Fill vacant positions
  - Plan for seasonal employee for enforcement
8. Information Management Goal
  - Conservation tracking software
  - Software interface with badger
9. Stewardship
10. Organizational Development Goal
  - PADP alignment throughout water division
  - Water Conservation Committee (subcommittee work)
  - Integration with Water Resources
11. Regional Water Management Goal
  - Collaborations with AWE, NMWCA, EPA WaterSense
  - Partnerships with non-profit groups
  - County member on the WCC
12. Water Demand Management and Conservation Goal
  - Badger Meters
  - Water Bank
  - Evaluation of new programs
13. Water Quality Goal
  - Backflow prevention work
14. Water Resource Planning and Management Goal
  - 40-year water plan
  - WCC Contribution
  - GPCD
  - AWWA Audit

Trying to narrow down the list to 3-4 applicable groups was necessary for tracking so the subcommittee combined categories together as logically as possible.

1. Education Outreach
  - a. Comprehensive Education program
    - i. Program metrics and measurement
  - b. QWEL classes and QWEL lite classes
2. Communications and Customer Service Goal
  - a. Eye on Water App
  - b. Survey
  - c. New radio show
  - d. Indoor and Outdoor audits
  - e. Residential and Commercial Rebates
  - f. Strategic Marketing Plan

3. Effective Program Management
  - a. Human Resources
  - b. Financial Resources and Budget
  - c. Organizational Development
    - i. Water Conservation Committee
    - ii. Integration with Water Resources
4. Stewardship and Conservation
  - a. Regional collaborations
  - b. GPCD analysis
  - c. AWWA audit

A draft of the scorecard is attached and the plan is to create a document documenting our baseline data for 2016. We will then use the scorecard that the Water Conservation Committee approves in January to track progress for 2017 and publish it in January 2018. Staff is still working on creating metrics and progress indicators for each overarching goal and the idea is to score either a yes or no if the goal is met at the end of 2017.

## 2016 Water Conservation Scorecard

The scorecard is intended to align with the Mission, Goals & Objectives of the City of Santa Fe Water Division as they apply to the Water Conservation Office. The goals have been grouped into four (4) main categories. A scoring mechanism will be created to reflect the accomplishments of the past year, as well as the goals being set for the future.

### Goal: Education Outreach

| Programs                                    | Status  | Completed | In Progress | Planned | Metrics                    | Comments  |
|---|---------|-----------|-------------|---------|----------------------------|---|
| Education Initiative                        | New     |           | 2017-18     |         | schools, classes, students |   |
| Children's Water Fiesta                     | Ongoing | 2016      | 2017        |         | schools, classes, students | Incorporate into Education Initiative and expand to serve more students |
| Children's Poster Contest                   | Ongoing |           | 2016-17     |         | schools, classes, students |   |
| Qualified Water Efficient Landscaper (QWEL) | Ongoing |           |             | 2017    | enrolled, passing          | Transitioning to SFCC   |
| Railyard Workshops/QWEL Lite                | Ongoing | 2016      |             | 2017    | attendees                  |   |
| Master Gardeners                            | Ongoing | 2016      |             |         | attendees                  |   |

### Goal: Communications and Customer Service

| Programs                           | Status  | Completed | In Progress | Planned | Metrics                       | Comments                                    |
|------------------------------------|---------|-----------|-------------|---------|-------------------------------|---|
| Eye On Water App Rollout           | New     |           | 2016        |         | participants                  |   |
| Customer Survey                    | New     | 2016      |             |         | participants, responses       |   |
| Revamp Radio Show                  | Ongoing | 2016      |             |         | inquiries                     | New branding, integration with social media |
| Indoor and Outdoor Audits          | Ongoing | 2016      |             |         | requests, follow up           | Rebate devices and values modified in 2016  |
| Residential and Commercial Rebates | Ongoing | 2016      |             |         | devices, water savings, value | Rebate devices and values modified in 2016  |
| Strategic Marketing Plan           | Ongoing |           | 2016        | 2017    | analytics, costs, types       | New branding, integration with social media |

### Goal: Effective Program Management

| Programs                         | Status  | Completed | In Progress | Planned | Metrics | Comments  |
|----------------------------------|---------|-----------|-------------|---------|---------|---|
| Human Resources                  | Ongoing |           | 2016-17     |         |         | Fill vacancies  |
| Financial Resources and Budget   | Ongoing |           |             | 2017    |         | Reallocate resources from discontinued programs to new programs             |
| Organizational Development       | Ongoing |           | 2016        | 2017    |         | Professional development  |
| Water Conservation Committee     | Ongoing |           |             |         |         |   |
| Integration with Water Resources | Ongoing |           | 2017        |         |         | Long Range Water Supply Plan, Reuse Feasibility Study, other planning tools |

### Goal: Stewardship and Conservation

| Programs                | Status  | Completed | In Progress | Planned | Metrics   | Comments |
|-------------------------|---------|-----------|-------------|---------|---|----------|
| Regional Collaborations | Ongoing |           |             |         | participants, follow up                             |          |
| GPCD Analysis           | Ongoing | 2015      | 2016        | 2017    | population, sectors, production, consumption, reuse |          |
| AWWA Audit              | Ongoing |           | 2016        | 2017-18 | non-revenue water                                   |          |



# EyeOnWater Outreach December 1-7, 2016



Download this App!  
Have More Control  
Set-up Leak Alerts  
Save Money

Keep an eye on water...  
using your phone, tablet or  
computer to spot costly leaks,  
set-up alerts and find ways to  
save water at home or work.  
Go to [eyeonwater.com](http://eyeonwater.com) to enter  
your zip code, select Santa Fe  
and enter your account #  
do not enter any zeros



## Facebook & Instagram Posts - Reach and Engagement

Reach Post Engagements

6,962

People Reached +2,183

219

Post Engagements +242%

Create your own  
EyeOnWater account to  
monitor water usage

City of Santa Fe Utilities Customers can now  
monitor their daily water use on their  
phone, tablet, or computer using  
EyeOnWater technology. Here's what you  
will need to create your own EyeOnWater  
account: your zip code, and Account number  
(omit the last 4-5 or 6 digits - do not enter  
the

### Santa Fe Water Conservation

December 1 at 10:00am

Santa Fe water customers now have online access to their hourly water usage information with the new EyeOnWater technology. It will save water by identifying leaks and helping you understand your household water use trends. Customers are encouraged to sign up today at [eyeonwater.com](http://eyeonwater.com)!



### EyeOnWater - Intro

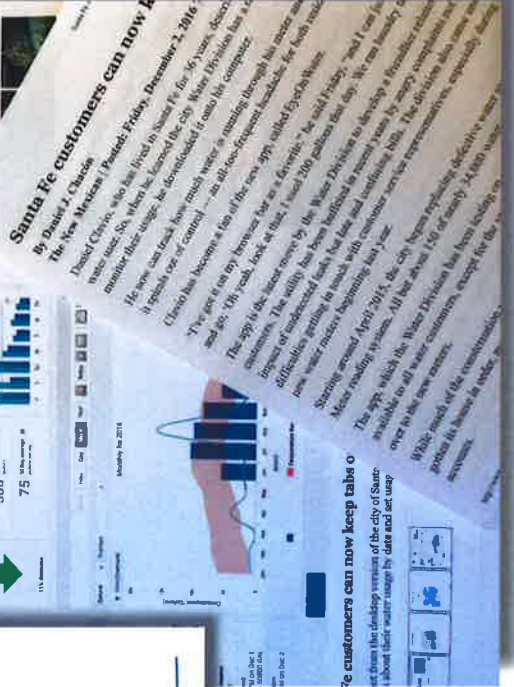
The City of Santa Fe Public Utilities Department recently began using EyeOnWater technology, allowing Santa Fe customers to monitor their water use data in real time.

Learn More

### S.F. customers can now keep tabs on water tap with app



Santa Fe customers can now keep tabs on water tap with app. The Santa Fe New Mexican Local News



## Communication Channels

3 Facebook posts  
3 Instagram posts  
Reach - 6,962

2 Nextdoor posts  
Reach - 4,512

3 YouTube videos  
Views - 217

1 Website post  
Pageviews - 1,798

Hutton Radio/santafe.com  
Reach - 246,000

KSWV/ SF Hometown News  
Reach - 30,000

Santa Fe New Mexican  
Reach - 225,000

Green Fire Times  
Reach - 30,000

Santa Fe Reporter  
Reach 60,000

Utility Bill Inserts  
Reach - 38,000



Need help?  
Call customer service at  
(505) 955-4333