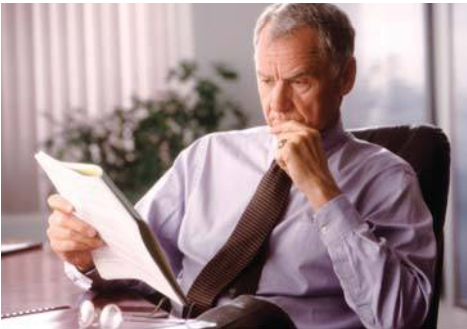


WATERWISE™  
RESOURCE ACTION PROGRAMS®



2006-2007  
Program  
Summary  
Report

Sponsored by:



Post Oak Savannah Groundwater Conservation District  
WaterWise Program



# **Post Oak Savannah Groundwater Conservation District WaterWise™ Program**

**Sponsored by:**



## **Program Summary Report 2006-2007**

**Submitted By:**

**Resource Action Programs®**



**August 2007**

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## EXECUTIVE SUMMARY

This report summarizes the Post Oak Savannah Groundwater Conservation District WaterWise Program. The Program is designed to facilitate installation of resource efficient technologies in homes and build knowledge of environmental issues yielding a variety of measurable water savings results using the best messengers - students. The Program was funded by Post Oak Savannah Groundwater Conservation District and implemented in the fifth grade at Buckholts School, Gause Elementary School, Snook Elementary School and Somerville Elementary School. The secret to the Program is combining a turnkey set of classroom activities with hands on home projects to install high efficiency devices and introduce resource conscious behavior to students and their families. Program Materials were distributed to one hundred nineteen (119) fifth grade students and their families. An overview of the results from the Program appears below, with greater detail in the attached report.

**Knowledge Gained:** Identical surveys (tests) were taken by students prior to the Program, and again upon its completion to measure knowledge gained. Scores and subject knowledge improved from 67% to 80%.

**Audit Information Obtained:** Household audits (customer surveys) were performed by students and their families as part of the Program activities. Important customer information was collected to better understand trends and usage. Some highlights include:

- **82% rated the WaterWise™ Program as good or great.**
- **65% reported they changed the way they use water.**

(A summary of responses can be found in Appendix B)



*As part of the program, children take a pre-program and post-program test to measure knowledge gained.*

**Measures Installed:** Students completed retrofit activities as part of the Program, and reported the measures they installed in their own homes. Some highlights include:

- **50% reported they installed the new high efficiency showerhead.**
- **56% reported they installed the bathroom aerator.**

(A summary of responses can be found in Appendix B)

**Resource Savings Results:** As a part of the Program and while working with parents, students measured the current devices in their homes, installed high efficiency devices and measured to calculate savings that they generated. Savings from these activities will continue for many years to come. The table below shows the projected savings from the Program, based upon information gathered by the students.

## Projected Resource Savings

(A summary of calculations can be found in Appendix A)

### *Projected Annual Savings*

1,186,318 gallons of water saved  
1,314 therms of gas saved  
106,710 kWh electricity saved  
1,186,318 gallons wastewater saved

### *Projected Annual Savings per Household*

9,969 gallons of water saved  
11 therms of gas saved  
897 kWh electricity saved  
9,969 gallons wastewater saved

### *Projected Ten Year Savings*

10,275,092 gallons of water saved  
11,384 therms of gas saved  
924,253 kWh electricity saved  
10,275,092 gallons wastewater saved

### *Projected Ten Year Savings per Household*

86,345 gallons of water saved  
96 therms of gas saved  
7,767 kWh electricity saved  
86,345 gallons wastewater saved



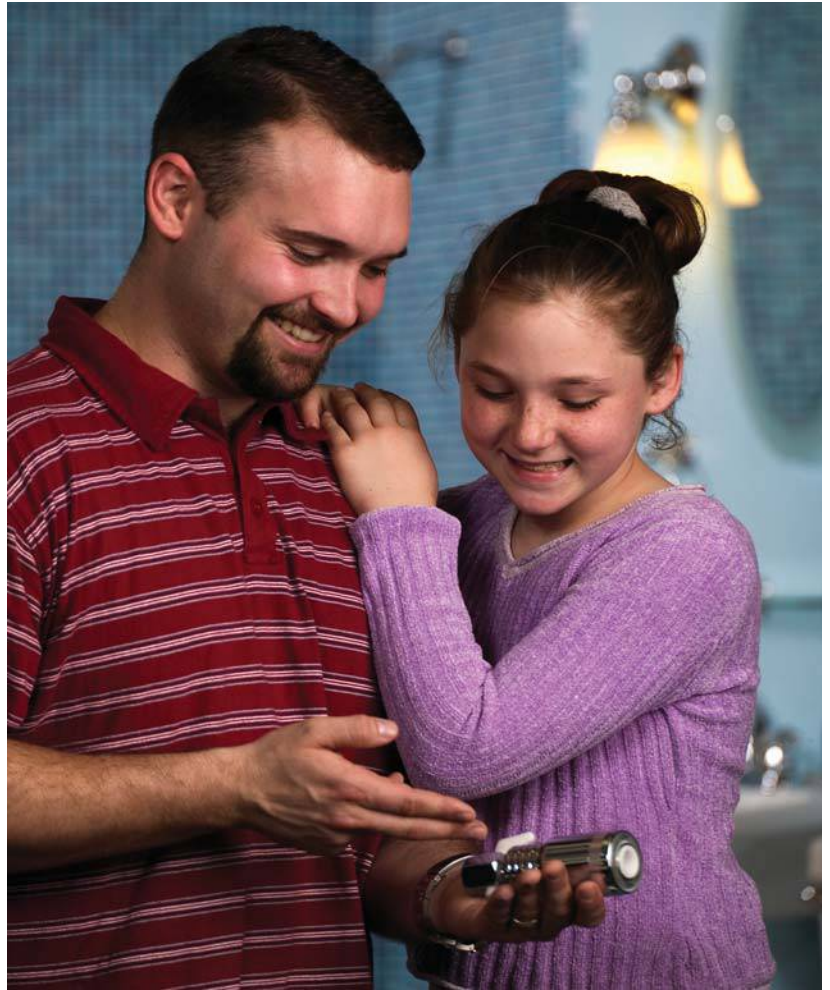
## PROGRAM **OVERVIEW**

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WaterWise is a fully implemented program, designed to generate immediate and long-term savings. The Program uses a school-based method that builds student knowledge, provides high efficiency devices to families, and serves as an effective community outreach Program.

The WaterWise staff identifies and enrolls students and teachers within the designated service territory. Enrolled participants receive educational materials designed to build participant knowledge and demonstrate simple ways to save, by not only changing habits, but also changing devices. Materials meet state and national educational standards, which allow the Program to easily fit into teachers' existing schedules and requirements.

As part of the Program, children take home a Resource Action Kit that contains high efficiency devices. With the help of their parents, they install the devices in their home and complete a home audit report. The WaterWise staff tabulates all responses, including home audits, teacher responses, student input, parent response and generates a Program Summary Report.



As part of the program, children take home a Resource Action Kit™. With the help of their parents they install the devices in their home.

## PROGRAM **MATERIALS**

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Each participant receives a Resource Action Kit containing efficiency technologies for their home and materials to perform the hands-on activities. Program materials include:

### **Each student/teacher receives:**

Student Activity Booklet

Parent Introduction Letter

Resource Action Kit containing:

- Oxygenics® Showerhead
- Kitchen Aerator
- Bathroom Aerator
- Flow Rate Test Bag
- Toilet Leak Detector Tablets
- Mini Tape Measure
- Rain / Drip Gauge
- Water Temperature Check Card
- Resource Facts Wheel
- CD-ROM Game

GetWise Wristband

Certificate of Achievement

Pre & Post Surveys

Home Audit Form

Parent Comment Card

Interactive Program Website

Toll-Free Telephone Support

### **Each teacher/classroom receives:**

Program Introduction Video

Lesson Plans/Curriculum Correlation

Supplementary Activities

Spanish Language Support Materials

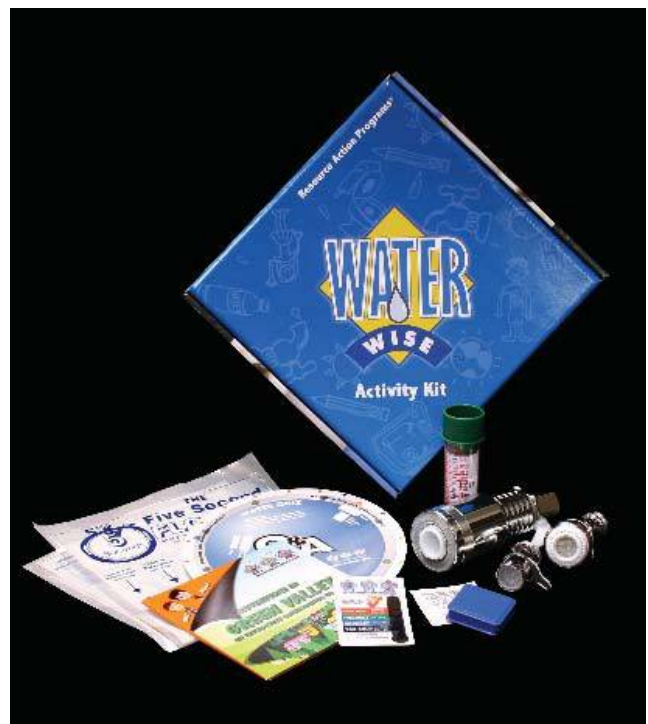
Implementation Checklist

Comprehensive Teacher Packet

24 Hour Web-based Support

Toll-Free Telephone Support

Classroom Posters



## PROGRAM IMPLEMENTATION

The WaterWise Program followed the subsequent implementation schedule:

1. Identification of State Education Standards & Benchmarks
2. Curriculum Development
3. Curriculum Correlation to State Education Standards & Benchmarks
4. Incentive Program Development
5. Teacher / School Identification
6. Program Introduction to Teachers
7. Enrollment Incentives Offered
8. Teachers Enrolled in the Program
9. Implementation Dates Scheduled with Teachers
10. Program Material Delivery
11. Delivery Confirmation
12. Program Enrollment Incentive Delivered
13. Periodic Contact to Ensure Implementation and Teacher Satisfaction
14. Program Completion Incentive Offered
15. Results Collection
16. Program Completion Incentive Delivered to Qualifying Participants
17. Thank-you Cards Sent to Participating Teachers
18. Data Analysis
19. Program Summary Report

Participating teachers may implement the Program to coincide with their lesson plans. The table below is a comprehensive list of fifth grade classrooms that participated during the 2006-2007 school year.

School	Contact	Teachers	Students
Buckholts School School	Tina Reynolds	1	13
Gause Elementary School	Beverly Renner	1	20
Snook Elementary School	Sarah Collins	1	45
Somerville Elementary School	Mary Foster	1	37

<b>Total</b>	4	115
<b>Total Participants</b>		119



## PROGRAM **IMPACT**

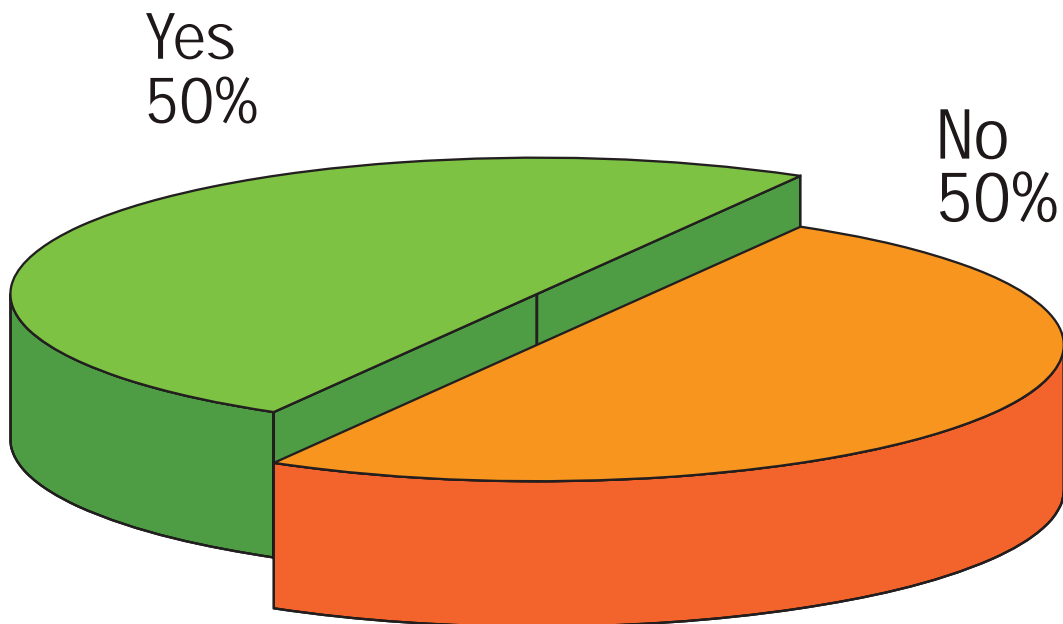
The Post Oak Savannah Groundwater Conservation District WaterWise Program has had a significant impact within the community. As illustrated below, the Program successfully educated a portion of the community about water efficiency while installing resource efficient technologies in homes and collecting data to better understand future trends and usage. The following results were compiled:

### **A. Water Adventure Report**

Upon completion of the Program, participating families are asked to complete a Water Adventure Report to assess their resource use, verify product installation and measure participation rates. To ensure students returned the Water Adventure Report, each participating teacher was provided with a classroom set of 'GetWise' bracelets, which were given to students who completed and returned the form. A few samples are below while a complete summary of all responses is included in the appendices.

Did you install the new high efficiency showerhead?	Yes - 50%
Did you install the kitchen aerator?	Yes - 61%
Did you work with your family on this Program?	Yes - 100%

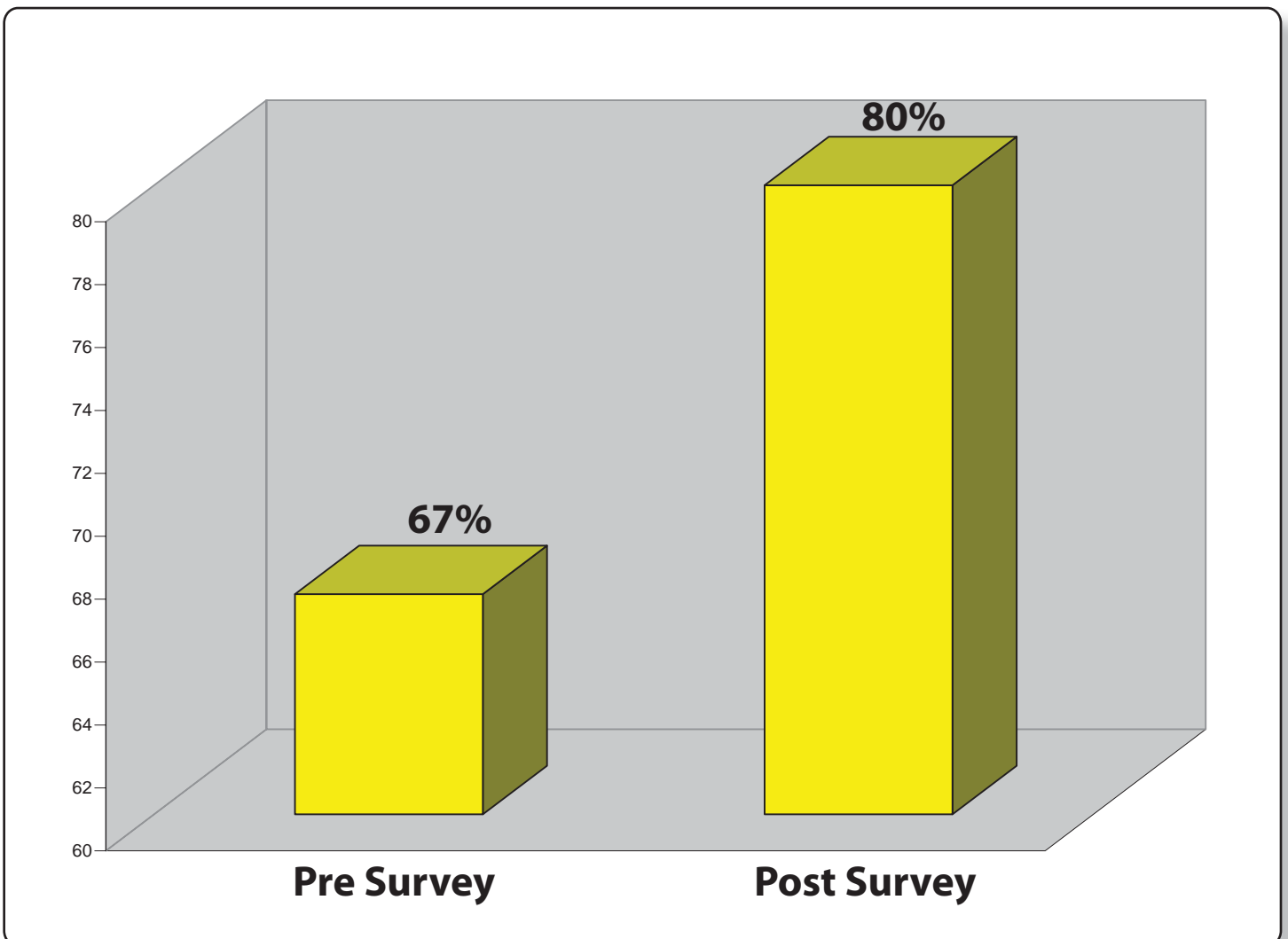
### **Did you install the showerhead?**



## **B. Pre/Post Survey**

Students were asked to complete a 10 question survey before the Program was introduced and then again after it was completed to determine the learning impact and the knowledge gained through the Program. The average student answered 6.7 questions correctly prior to being involved in the Program and then improved to answer 8.0 questions correctly following participation.

**Scores improved from 67% to 80%**



### C. Resource Savings Summary

Using the family habits collected from the customer survey information as the basis for this calculation, one hundred nineteen (119) Post Oak Savannah Groundwater Conservation District WaterWise Program households are expected to save the following resource totals. A list of assumptions and formulas used for these calculations can be found in the appendices.

## Projected Resource Savings

Total Number of Participants:

119

Annual

Lifetime

Reduction from showerhead retrofit:  
Product Life: 10 years

868,700  
962  
78,140

8,687,000 gallons  
9,624 therms  
781,403 kWh

Reduction from kitchen aerator retrofit:  
Product Life: 5 years

165,596  
183  
14,895

827,980 gallons  
917 therms  
74,477 kWh

Reduction from bathroom aerator retrofit:  
Product Life: 5 years

152,023  
168  
13,675

760,113 gallons  
842 therms  
68,373 kWh

**TOTAL PROGRAM SAVINGS:**

1,186,318  
1,314  
106,710

10,275,092 gallons  
11,384 therms  
924,253 kWh

**TOTAL PROGRAM SAVINGS PER HOUSEHOLD:**

9,969  
11  
897

86,345 gallons  
96 therms  
7,767 kWh

#### D. Program Enhancements

In addition to increasing resource awareness and efficiency, the Program strengthens bonds between sponsors and their communities. The Program has been designed from start to finish with this in mind.

Some of the steps taken to ensure our sponsors receive the greatest possible exposure are as follows:

**Kit Branding:** Each Resource Action Kit was labeled with the sponsor's logo.



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## Resource Savings Estimates

### Estimated Savings from Showerhead Retrofit

Average household size:	2.50 people <sup>3</sup>
Average length of use:	8.00 minutes <sup>4</sup>
Product life:	10.00 years <sup>1</sup>
Average showerhead has a flow rate of:	4.00 gallons per minute <sup>4</sup>
Oxygenics showerhead has flow rate of:	2.00 gallons per minute
Flow reduction:	2.00 gallons per minute

#### Water:

Average showerhead requires:	80.00 gallons
Retrofit showerhead requires:	40.00 gallons
Showerhead produces an <b>annual</b> reduction of:	14,600.00 gallons
Showerhead produces a <b>lifetime</b> reduction of:	146,000 gallons

#### Gas:

Average showerhead requires:	0.47 therms
Retrofit showerhead requires:	0.23 therms
% of water heated by gas:	19%
Showerhead produces an <b>annual</b> reduction of:	16 therms
Showerhead produces a <b>lifetime</b> reduction of:	162 therms

#### Electricity:

Average showerhead requires:	8.88 kWh
Retrofit showerhead requires:	4.44 kWh
% of water heated by electricity:	81%
Showerhead produces an <b>annual</b> reduction of:	1,313 kWh
Showerhead produces a <b>lifetime</b> reduction of:	13,133 kWh

Number of participants:	119
Installation / participation rate of:	50%

#### Total reduction from showerhead retrofit:

<b>Annual:</b>	868,700 gallons
	962 therms
	78,140 kWh
<b>Lifetime:</b>	8,687,000 gallons
	9,624 therms
	781,403 kWh

1 - Product life taken from manufacturer.

3 - U.S. Census Bureau, 2003. Population Division, Fertility and Family Statistics Branch

4 - Ridge & Associates, 2001. Southern California Edison: Evaluation of 2000-2001 School Programs.

## Estimated Savings from Kitchen Aerator Retrofit

Average household size:	2.50 people <sup>3</sup>
Average length of use:	2.50 minutes <sup>4</sup>
Product life:	5.00 years <sup>1</sup>
Average kitchen aerator has a flow rate of:	2.50 gallons per minute <sup>4</sup>
Retrofit kitchen aerator has flow rate of:	1.50 gallons per minute <sup>4</sup>
Flow reduction:	1.00 gallons per minute

### Water:

Average kitchen aerator requires:	15.63 gallons
Retrofit kitchen aerator requires:	9.38 gallons
Retrofit kitchen aerator produces an <b>annual</b> reduction of:	2,281 gallons
Retrofit kitchen aerator produces a <b>lifetime</b> reduction of:	11,406 gallons

### Gas:

Average kitchen aerator requires:	0.09 therms
Retrofit kitchen aerator requires:	0.05 therms
% of water heated by gas:	19%
Retrofit kitchen aerator produces an <b>annual</b> reduction of:	3 therms
Retrofit kitchen aerator produces a <b>lifetime</b> reduction of:	13 therms

### Electricity:

Average kitchen aerator requires:	1.74 kWh
Retrofit kitchen aerator requires:	1.04 kWh
% of water heated by electricity:	81%
Retrofit kitchen aerator produces an <b>annual</b> reduction of:	205 kWh
Retrofit kitchen aerator produces a <b>lifetime</b> reduction of:	1026 kWh

Number of participants:	119
Installation / participation rate of:	61%

### Total reduction from kitchen aerator retrofit:

<b>Annual:</b>	165,596 gallons
	183 therms
	14,895 kWh
<b>Lifetime:</b>	827,980 gallons
	917 therms
	74,477 kWh

1 - Product life taken from manufacturer.

3 - U.S. Census Bureau, 2003. Population Division, Fertility and Family Statistics Branch

4 - Ridge & Associates, 2001. Southern California Edison: Evaluation of 2000-2001 School Programs.

## Estimated Savings from Bathroom Aerator Retrofit

Average household size:	2.50 people <sup>3</sup>
Average length of use:	2.50 minutes <sup>4</sup>
Product life:	5.00 years <sup>1</sup>
Average bathroom aerator has a flow rate of:	2.00 gallons per minute <sup>4</sup>
Retrofit bathroom aerator has flow rate of:	1.00 gallons per minute <sup>4</sup>
Flow reduction:	1.00 gallons per minute

### Water:

Average bathroom aerator requires:	12.50 gallons
Retrofit bathroom aerator requires:	6.25 gallons
Retrofit bathroom aerator produces an <b>annual</b> reduction of:	2,281 gallons
Retrofit bathroom aerator produces a <b>lifetime</b> reduction of:	11,406 gallons

### Gas:

Average bathroom aerator requires:	0.07 therms
Retrofit bathroom aerator requires:	0.04 therms
% of water heated by gas:	19%
Retrofit bathroom aerator produces an <b>annual</b> reduction of:	3 therms
Retrofit bathroom aerator produces a <b>lifetime</b> reduction of:	13 therms

### Electricity:

Average bathroom aerator requires:	1.39 kWh
Retrofit bathroom aerator requires:	0.69 kWh
% of water heated by electricity:	81%
Retrofit bathroom aerator produces an <b>annual</b> reduction of:	205 kWh
Retrofit bathroom aerator produces a <b>lifetime</b> reduction of:	1026 kWh

Number of participants:	119
Installation / participation rate of:	56%

### Total reduction from bathroom aerator retrofit:

<b>Annual:</b>	152,023 gallons
	168 therms
	13,675 kWh
<b>Lifetime:</b>	760,113 gallons
	842 therms
	68,373 kWh

1 - Product life taken from manufacturer.

3 - U.S. Census Bureau, 2003. Population Division, Fertility and Family Statistics Branch

4 - Ridge & Associates, 2001. Southern California Edison: Evaluation of 2000-2001 School Programs.

# Water Adventure Report Data

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1 Did you install the new high efficiency showerhead?	
Yes	50%
No	50%
2 What is the flow rate of your old showerhead?	
0 - 1.0 gpm	17%
1.0 - 1.5 gpm	17%
1.5 - 2.0 gpm	17%
2.0 - 2.5 gpm	8%
2.5 - 3.0 gpm	42%
3.0+ gpm	0%
3 What is the flow rate of your new showerhead?	
0 - 1.0 gpm	20%
1.0 - 1.5 gpm	40%
1.5 - 2.0 gpm	40%
4 Number of bathrooms in residence?	
1	18%
2	76%
3+	6%
5 Number of half bathrooms in residence?	
0	82%
1	18%
2	0%
3+	0%
6 How many toilets are in your home?	
1	18%
2	65%
3	18%
4+	0%
7 How many toilets did you check for leaks?	
0	13%
1	31%
2	50%
3+	6%
8 How many toilets are leaking?	
0	81%
1	19%
2	0%
3+	0%

9 Did you install the bathroom aerator?		
Yes		56%
No		44%
10 Did you install the kitchen aerator?		
Yes		61%
No		39%
11 How many faucets did you check for leaks?		
0		19%
1		13%
2		13%
3+		56%
12 How many faucets are leaking?		
0		75%
1		6%
2		13%
3+		6%
13 How is your water heated?		
Gas		19%
Electric		81%
14 How often is your lawn watered per week?		
0		41%
1		41%
2		6%
3+		0%
Don't know		12%
15 Was your home built before 1992?		
Yes		38%
No		63%
16 Type of residence?		
Single family home		88%
Multi-family (2-4 units)		13%
Multi-family (5-20 units)		0%
Multi-family (21+ units)		0%
17 Is your residence rented or owned?		
Rented		29%
Owned		71%



18 Number of children (age 0-17)?		
1		24%
2		29%
3		18%
4+		29%
19 Number of adults (age 18+)?		
1		12%
2		76%
3		12%
4+		0%
20 Do you have a dishwasher?		
Yes		47%
No		53%
21 Did you work with your family on this program?		
Yes		100%
No		0%
22 Have you and your family changed the way you use water?		
Yes		65%
No		35%
23 How would you rate the WaterWise program?		
Great		47%
Pretty Good		35%
Okay		12%
Not so Good		6%
No Answer		12%
		6%



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