

# Staff Report

**TO:** Board of Directors

**FROM:** Kaycee Strong, Water Efficiency Technician  
Aurora Penaluna, Customer Service Administrator

**DATE:** March 22, 2023

**SUBJECT:** Water Efficiency Program Informational Presentation

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## ***WATER OPERATIONS***

### **RECOMMENDATION:**

Receive an informational presentation outlining the 2023 water efficiency program goals and objectives.

### **BACKGROUND:**

Since its inception in 2011, the District's water efficiency program has developed and coordinated educational programs, including fairs and events, irrigation workshops, customer surveys, newsletters, website information and, demonstration gardens.

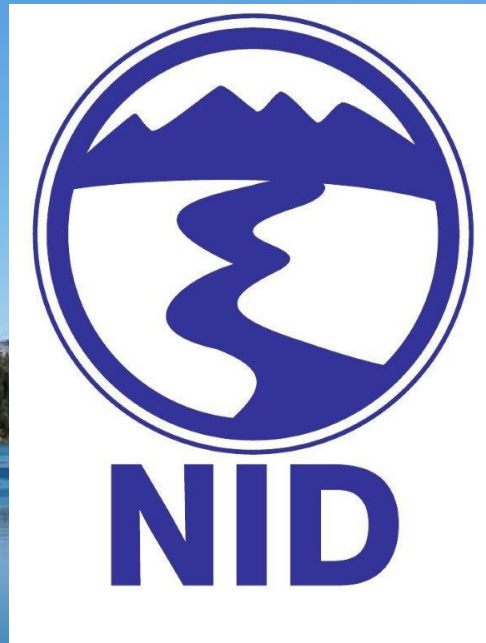
Over the last five years, the water efficiency program has continued to grow and in 2023 the water efficiency team plans to offer multiple rebate pilot programs, new homeowner water wise house calls, and a student poster contest.

### **BUDGETARY IMPACT:**

Informational item only

Attachments (1): PowerPoint presentation

# Nevada Irrigation District Water Efficiency Program



*Proudly serving portions of Nevada, Placer, and Yuba Counties*

- ▶ Water Efficiency Technician
  - ▶ Customer Service Administrator
  - ▶ Customer Service Representative
  - ▶ Customer Service Technician



Who are We?

# Permanent Water Use Restrictions

- ▶ Washing down paved surfaces unless for health and safety
- ▶ Watering that causes excessive run off
- ▶ Washing of a vehicle with a hose unless fitted with a shutoff nozzle
- ▶ Cleaning of gutters by flooding with water
- ▶ Landscape watering during heat of day (10:00am to 9:00pm)
- ▶ Use of fountains and water features that do not recirculate water
- ▶ Outdoor watering during periods of rain

## Recommendations:

- ▶ Limit Watering to 3 days per week
  - ▶ Even numbered addresses only water outdoor Wednesday, Friday, Sunday
  - ▶ Odd number addresses only water outdoor Tuesday, Thursday Saturday

**DROUGHT IS BACK**

 **BeWaterSmart**  
Regional Water Authority

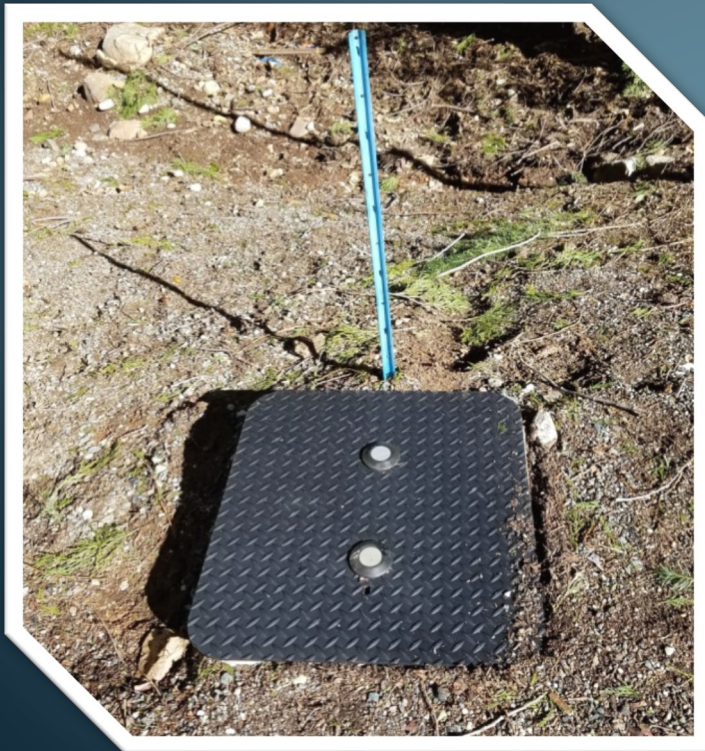
 **WATER YOUR TREES**

 **STRESS YOUR LAWN**

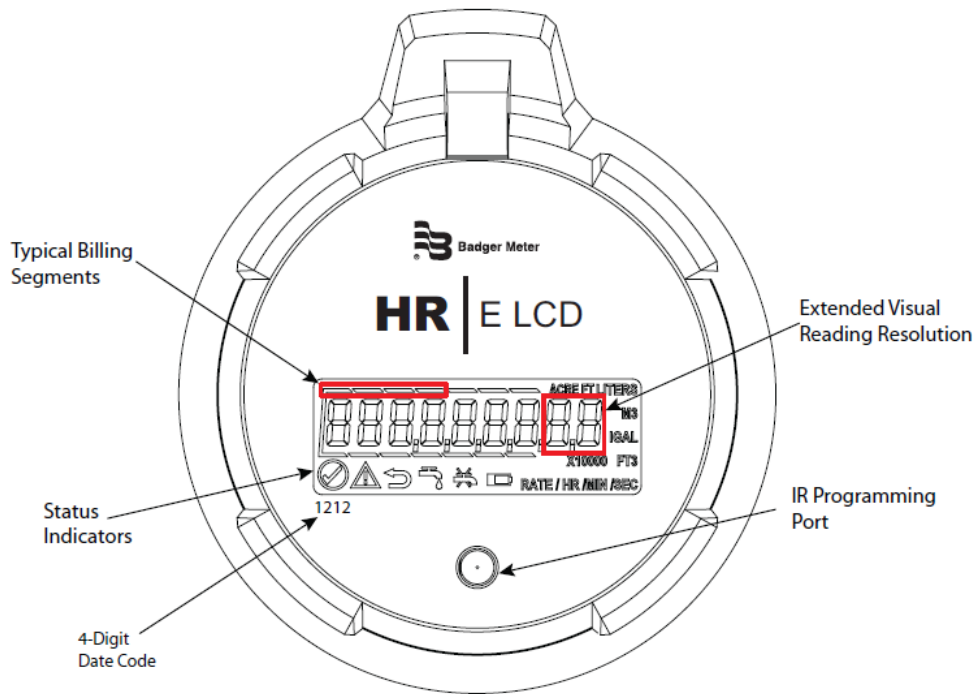
[BeWaterSmart.info](http://BeWaterSmart.info)

# Converting to Cellular Badger Meter

- ▶ Approximately 12,050 Badger meters installed as of March 2023



- ▶ Existing meters are replaced when components fail.
- ▶ Maintenance will be designating crews towards meter replacement.



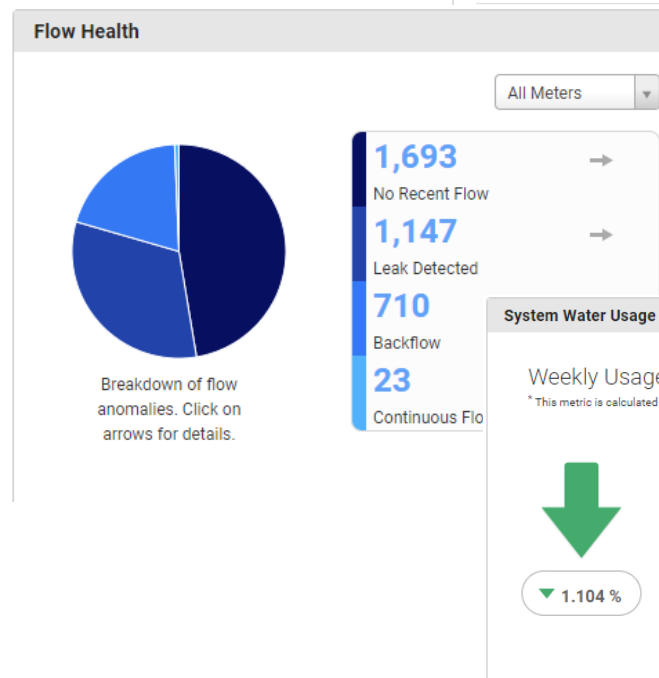
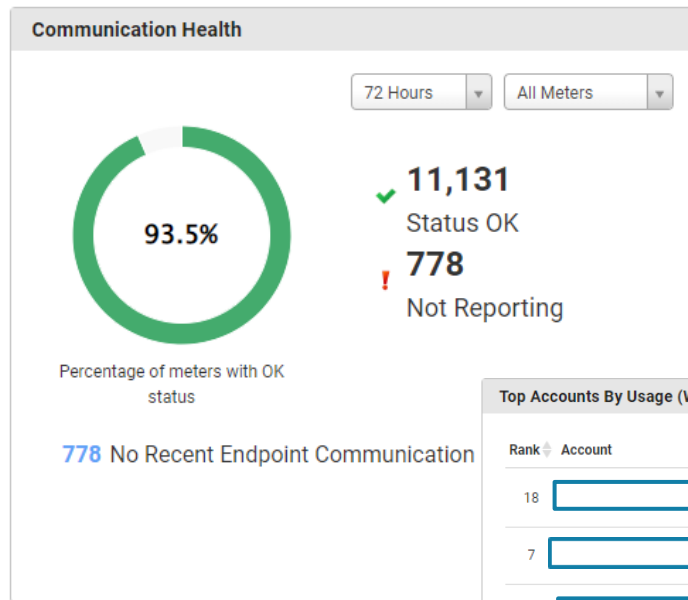
# Badger Meter

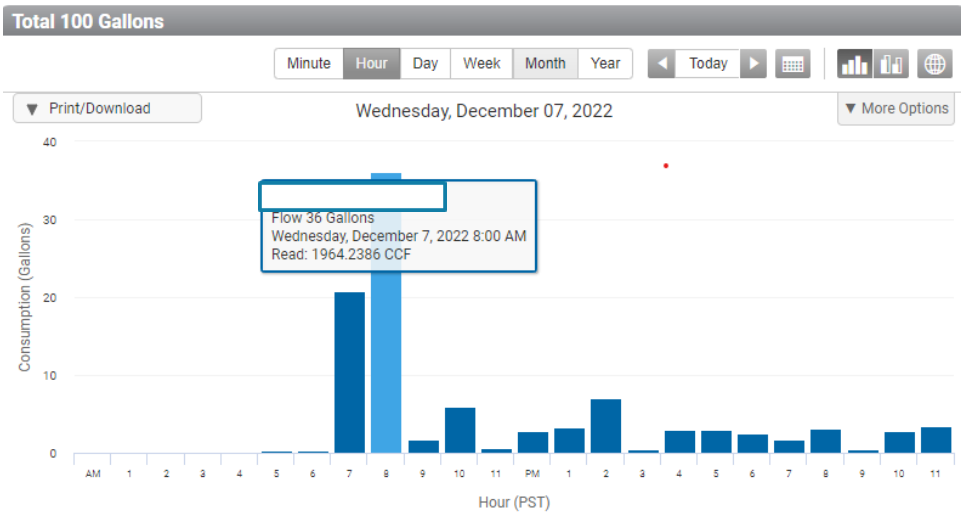
Status Indicator	Icon	Status Description	HR-E LCD Display	HR-E LCD with ORION Cellular or Fixed Network* and Migratable* Endpoints <small>*Firmware version 1.8 or higher required</small>
Meter functioning correctly		Encoder operating correctly.	Continuous display on encoder as long as no other status indicators are triggered.	Indicator status not sent to the endpoint.
Encoder alarm		Several potential conditions may exist, including: Encoder removal Temperature limit exceeded (34... 140° F) Magnetic tamper	Encoder alarm remains active for 35 days. The alarm automatically clears after 35 days if any of the 3 conditions has not recurred.	Encoder alarm sent to the endpoint.
Reverse flow		Encoder detects reverse flow.	Reverse flow alarm remains active for 35 days. The alarm automatically clears after 35 days if reverse flow condition has not recurred.	Encoder detects reverse flow and sends alarm message to the endpoint.
Suspected leak		Encoder detects 24 hours without one 15-minute interval of no flow.	The alarm clears automatically when a 15-minute no-flow interval occurs.	Encoder detects suspected leak and sends alarm message to the endpoint. If condition clears before message is sent to the endpoint, it is not reported.
30 day no usage		No measured flow in past 30 days.	The alarm is automatically cleared once flow occurs.	Encoder detects 30 days no usage and sends alarm to the endpoint.
End of life battery indicator		Indicated battery life based on pre-calculated consumption.	Alarm activated at 19 years and does not clear.	Encoder sends alarm to the endpoint.

Model 25 Disc Series Meter Calibrated in Gallons

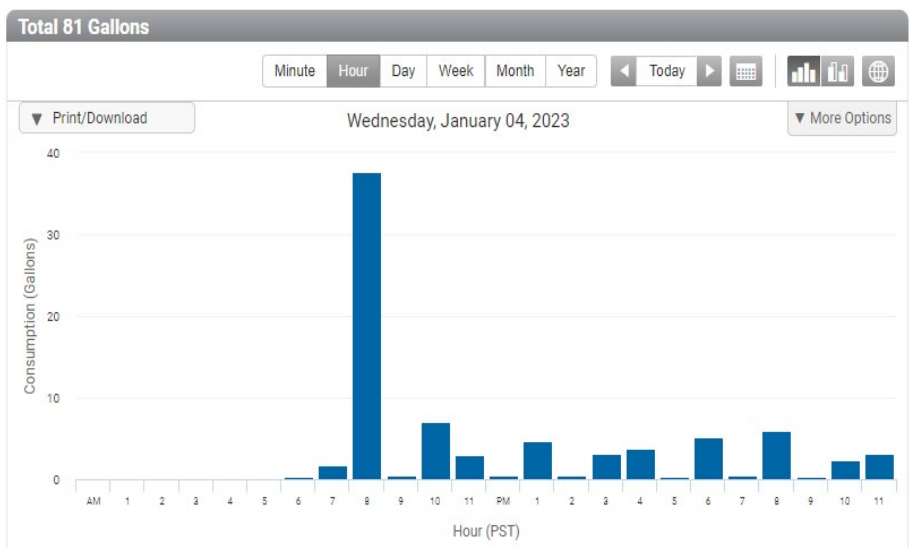


# Beacon Home Screen





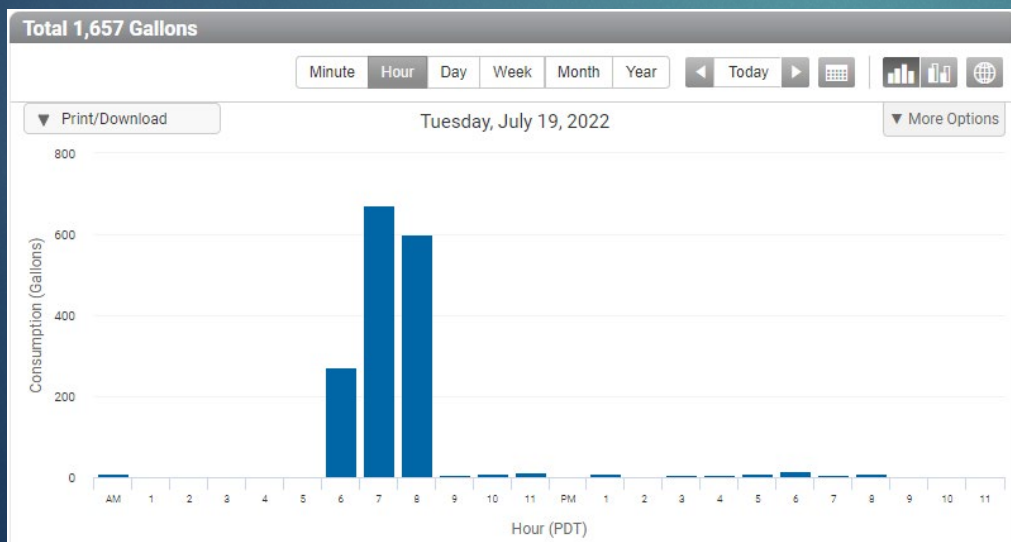
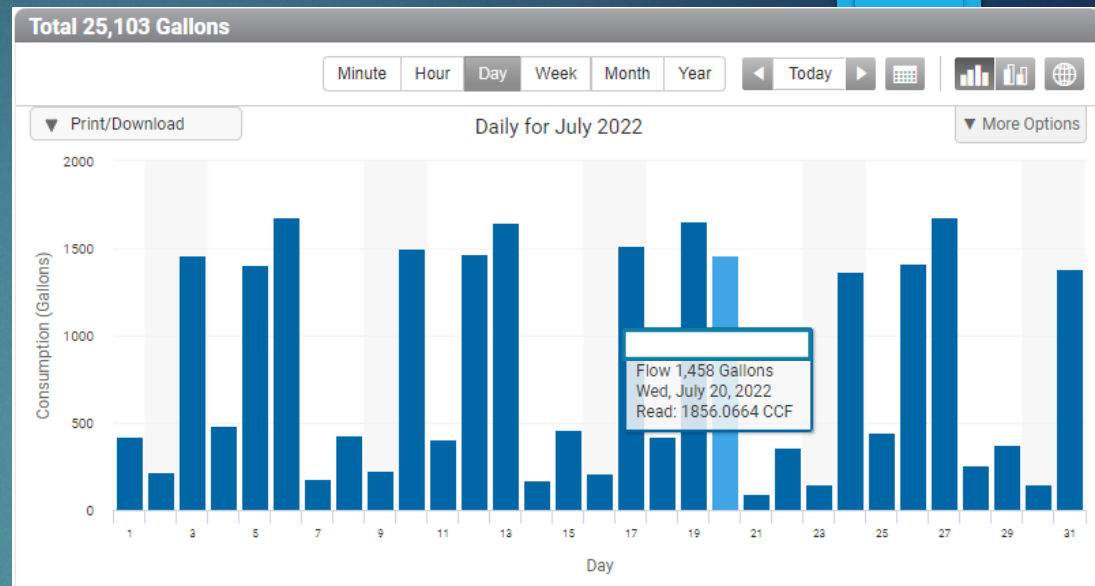
A 1688 sq. ft. single family residence water use for December 2022 -January 2023  
Average = 90 gallons



# Hour by Hour Water Use



# I Used How Much Water?



The same single family residence water usage for July 2022 averaged 810 gallons per day.

# Tracking Previous Usage




Read Date	Consumption
	0.00000
12/20/22	8.00000
11/15/22	23.00000
10/17/22	24.00000
09/20/22	28.00000
08/16/22	33.00000
07/19/22	27.00000
06/22/22	32.00000
05/17/22	24.00000
04/19/22	36.00000
03/15/22	31.00000
02/15/22	6.00000
01/19/22	9.00000
12/21/21	6.00000
11/16/21	8.00000
10/19/21	32.00000
09/21/21	42.00000
08/17/21	40.00000
07/20/21	67.00000
06/15/21	45.00000
05/18/21	38.00000
04/20/21	30.00000
03/16/21	6.00000
02/17/21	7.00000
01/20/21	13.00000

The same single family residence water use for  
July 18-20, 2021  
Average = 1372 gallons per day  
(40% decrease from 2021)

# Eye on Water

### Your Meter




Your meter measures the quantity of water used in your household. Flow is measured electronically at hourly intervals, and updated every 24 hours for billing and leak detection.

**Read Frequency**  
Daily

**Meter Read**  
11:00 AM on Jan 17  
371.12517 CCF

**Next Update**  
11:06 AM on Jan 18

### At a Glance

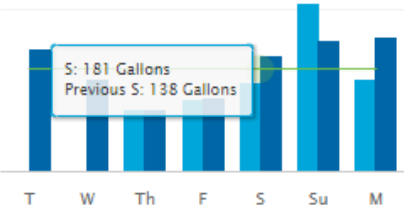


**1,140** Last 7 days  
Gallons

**752** Previous 7 days  
Gallons

**158** 30 Day Average  
Gallons


52% Increase



S: 181 Gallons  
Previous S: 138 Gallons

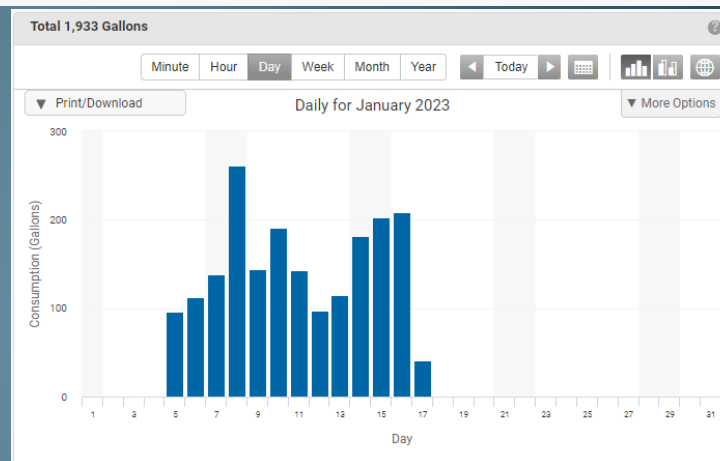
Day	Consumption (Gallons)
T	181
W	138
Th	138
F	138
S	138
Su	181
M	138

### Leaks



**No leak detected. Great job!**

Edit Leak Alert



- ▶ Soft roll out
  - ▶ 271 users
  - ▶ Link given upon request
  - ▶ Mass notification once majority of customer have new meter
  - ▶ Mobile read endpoints will not have access to Eye on Water
    - ▶ Currently 1,735 Mobile Endpoints

# Identifying Customers with Leaks

**Leak Detected: 9.6 Gallons/hour beginning Sep 30, 2021 2:00 PDT**

Star icon, Water drop icon, Green arrow pointing down

Jan 3-9	Jan 10-16
<b>2,326</b> Gallons	<b>2,317</b> Gallons

**Account ID**

**Account Name**

**Service Agreement**  
Start: Nov 3, 2020

**Class Code**  
SINGLE

**Service Address**

AUBURN  
CA 95602

**Meter ID**  
200615280

**Cycle**  
3

**Route**  
352

Login As Add Note Tags Edit Alert More

Location Meter Reads Endpoint Sensors

Full Read	Billing Read	Read Method	Read Date
84301.15 Cubic Feet	843 CCF	Network	Jan 17, 2023 11:44 PST 3 hours ago

- 1,116 leaks detected on March 13, 2023
- Leaks ranged from 1 gallon per hour to 1,003 gallons per hour
- Leak report checked daily
  - Large leaks are dispatched immediately
  - Customers with smaller leaks receive a letter or email



# NEVADA IRRIGATION DISTRICT

1036 W. Main Street, Grass Valley, CA 95945-5424  
(530) 273-6185 ~ Fax: (530) 477-2646 ~ www.nidwater.com

February 7, 2018

Nevada Irrigation District  
1036 West Main Street  
Grass Valley CA 95945

Account: 12345-2  
Service Address: West Main Street, 1036

Dear Customer:

A recent report has been taken of our water meter, and we find that the meter has detected a continuous flow of water for more than a 24 hour period. This continuous flow may cause an increase in your bimonthly water consumption.

You may already be aware of the continuous flow, however, we are taking this means of notifying you in advance of the regular billing, so that you may determine any source through which water may be leaking and wasted, and thereby eliminate any additional loss.

Continuous Flow Rate: 2.39 gallons/hour  
Read Date: 2/7/2018 10:59:00 PM  
Current Read: 171.5759

Enclosed you will find information about reading your water meter and how to determine if there is a leak at the property. If you have completed the steps and still have questions, please contact Customer Service at 530-273-6185.

Sincerely,

Customer Service  
Nevada Irrigation District

SERVING PORTIONS OF NEVADA, PLACER & YUBA COUNTIES

### Status Indicators:

Status Indicator	Icon	Status Description	HR-E LCD Display
Meter functioning Correctly		Register/encoder is operating correctly.	Continuous display on register/encoder as long as no other status indicators are triggered
Suspected Leak		Register/encoder detects 24 hours without one 15-minute interval of no flow.	The alarm clears automatically when a 15-minute no-flow interval occurs.

### Rate of Flow:

The rate of flow screen is in Gallons per minute. The displayed rate will be based on the average flow rate for the prior minute (since the last time the flow rate was displayed). This screen displays for 5 seconds.

If, there are numbers showing on this screen, and you were NOT running water. Water flowed through the meter when you were not using it.



# Notifying Customers of a Leak



## How to Detect a Water Leak

### • Check meter for running water

**Sensus Meters:** Look for red dial spinning- indicating water flowing through meter

**Badger Meters:** Numbers on the right hand side will be moving- indicating water flowing through meter

### • Verify leak with a timed meter test

**Step 1:** Locate meter and write down all numbers showing

**Step 2:** Don't use water for 30-60 minutes

(Including swimming pools, ice-cube maker, landscape irrigation, etc.)

**Step 3:** Verify the numbers on the meter are the same

**\*\*If the numbers are different, water ran through the meter during that time and you likely have a leak.**

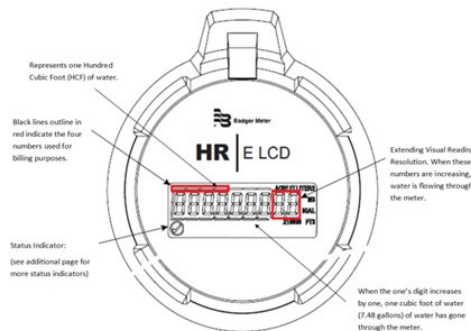
### • Isolating leak

**Step 1:** Locate the shut off valve at the home and turn it off.

**Step 2:** Look at meter. If water is still flowing through the meter, the leak is located in the pipes between the meter and the shut off valve to the home.

**\*\*If the meter is not moving the leak is beyond that shut off valve.**

Questions? Call NID  
530-273-6185  
nidwater.com



- Water Wise Landscape
  - Eliminated approximately 3,400 sq. ft. of turf
  - Replaced with water wise plants and mulch
  - Uses smart irrigation controller
  - Irrigation & plant handouts



What is NID  
Doing to  
Conserve?

# 2023 Mulch Magic

▶ WHEN:

SATURDAY, MAY 20<sup>TH</sup>

7AM-11AM

(WHILE SUPPLIES LAST)

▶ WHERE:

NEVADA COUNTY FAIRGROUNDS -  
GATE 8

▶ NEED HELP LOADING? LOCAL  
BOY AND EAGLE SCOUTS WILL BE  
AVAILABLE TO HELP LOAD!

▶ **\*\*BE SURE TO TIP YOUR SCOUT\*\***



# Community Outreach

- ▶ The Union's Home and Garden Show
- ▶ Fire Safe Council Kids Carnival
- ▶ Food and Farm Conference
- ▶ Master Gardeners





# Toilet Rebate Program

- ▶ Began 2020 with 200 available rebate
- ▶ 2022 - 100 available rebates
  - ▶ 20 rebates redeemed
- ▶ 2023 Budget \$1,000 – 10 rebates
- ▶ NID treated water, residential customers
- ▶ Replace older inefficient toilet with a high-efficient toilet
- ▶ Limit to one rebate per parcel
- ▶ 95 total rebates redeemed to date



# Raw Water Storage Tank Rebate

- ▶ Available to customers Spring 2023
- ▶ Budget \$15,000
- ▶ Rebates will be approximately 25% of cost
  - ▶ 500-gallon tank- \$150 (14 available)
  - ▶ 600-1500-gallon tank- \$300 (18 available)
  - ▶ 1600-gallon tank- \$500 (15 available)
- ▶ Must be an NID raw water customer
- ▶ Limit to one rebate per account and/or parcel
- ▶ Installation is solely up to the customer
- ▶ Proof of installation is required (on-site inspection & photos)
- ▶ Rebate will become a credit on the customer's account

# Turf Removal Rebate

- ▶ Available Spring 2023
- ▶ Budget \$16,000
  - ▶ Minimum of 16 available rebates
    - ▶ \$1.00 per sq ft converted turf up to \$1,000
    - ▶ Minimum 250 square feet
  - ▶ Limited to NID treated water customers
  - ▶ Applicants' usage must be 25% greater and exceed 15 HCF during irrigation season (April-October) for the past two years
  - ▶ Replace turf with water efficient landscape
    - ▶ 3 plants per 100 square feet
    - ▶ Must be permeable to air and reduce water runoff
    - ▶ Include mulch or other inorganic mulch around plants and bare soil
    - ▶ Must convert to drip, micro-spray, bubblers or rotating nozzles. No overhead spray
    - ▶ No Synthetic Turf
  - ▶ Rebate will be issued as a bill credit on the customer's account

# Additional Rebates

(Upcoming 2024)

- ▶ Irrigation Timer Rebate
  - ▶ Treated or Raw water customers
  - ▶ \$50-100 per rebate
  - ▶ Upgrade irrigation system with smart timer
  - ▶ Assist customer with watering schedule
    - ▶ Days per week/allotted time
- ▶ Leak Rebate
  - ▶ Treated water customers
    - ▶ Cannot qualify for leak adjustment
  - ▶ Must have leak fixed
  - ▶ \$50-100 towards repair costs

# Student Poster Contest

- ▶ Coming soon- Fall 2023
- ▶ Budget \$10,000
- ▶ Theme: Stop the Drip to Save the Drop
- ▶ Schools in NID service area
  - ▶ K-8 & 9-12
- ▶ Hand drawn or digital art
- ▶ Illustrate why saving water is important
- ▶ Incentives
  - ▶ Teachers will be entered to win gift cards
  - ▶ Total of 12 winners (each receive gift card)
  - ▶ Calendar with winning artwork

# Water Wise House Calls

- ▶ Upcoming Spring/Summer 2023
- ▶ Available to new homeowners
  - ▶ Mark and stake water meter
  - ▶ Advise of customer shut off valve
  - ▶ How to read meter
  - ▶ Ways to locate/isolate leak (if needed)
  - ▶ Water usage at property
    - ▶ How to calculate water usage

# State Reporting

## ▶ Monthly

- ▶ State Water Resource Control Board
- ▶ Urban Water Supplier
- ▶ Monthly Production vs Water Supplied
- ▶ Drought Response

## ▶ Annually

- ▶ 6 water audits (one for each system)
- ▶ Water Supplied
  - ▶ Imported/Exported
- ▶ Authorized consumption
- ▶ Water Losses
  - ▶ Auto-calculates system losses
- ▶ Each audit must be validated
  - ▶ Budget: \$13,000
  - ▶ Ensure accuracy of data

WAS v5.0  
American Water Works Association

**AWWA Free Water Audit Software:  
Reporting Worksheet**

Water Audit Report for: **NID E. George (CA2910004)**  
Reporting Year: **2021** / 1/2021 - 12/2021

**All volumes to be entered as: MILLION GALLONS (US) PER YEAR**

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

←----- Enter grading in column 'E' and 'J' ----->

Category	Item	Value	Unit
WATER SUPPLIED	Volume from own sources	1,209,260	MG/yr
	Water imported	17,240	MG/yr
	Water exported	263,596	MG/yr
<b>WATER SUPPLIED:</b>		<b>962,123</b>	<b>MG/yr</b>
AUTHORIZED CONSUMPTION	Billed metered	891,920	MG/yr
	Billed unmetered	0,544	MG/yr
	Unbilled metered	2,040	MG/yr
	Unbilled unmetered	0,893	MG/yr
<b>AUTHORIZED CONSUMPTION:</b>		<b>895,397</b>	<b>MG/yr</b>
<b>WATER LOSSES (Water Supplied - Authorized Consumption)</b>		<b>66,726</b>	<b>MG/yr</b>
<b>Apparent Losses</b>			
Unauthorized consumption		2,231	MG/yr
Customer metering inaccuracies		18,244	MG/yr
Systematic data handling errors		2,231	MG/yr
<b>Apparent Losses:</b>		<b>22,706</b>	<b>MG/yr</b>
<b>Real Losses (Current Annual Real Losses or CARL)</b>			
Real Losses = Water Losses - Apparent Losses		44,020	MG/yr
<b>WATER LOSSES:</b>		<b>66,726</b>	<b>MG/yr</b>
<b>NON-REVENUE WATER</b>			
<b>NON-REVENUE WATER:</b>		<b>69,659</b>	<b>MG/yr</b>

= Water Losses + Unbilled Metered + Unbilled Unmetered

### WATER AUDIT DATA VALIDITY SCORE:

\*\*\* YOUR SCORE IS: 74 out of 100 \*\*\*

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

### PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

- 1: Volume from own sources
- 2: Customer metering inaccuracies
- 3: Unauthorized consumption



**NID**

Questions?