This presentation premiered at WaterSmart Innovations

watersmartinnovations.com
The Development and Implementation of a Leak Detection Program and Study by SNWA Conservation

Toby Bickmore

SOUTHERN NEVADA WATER AUTHORITY®
Residential Household Leaks

- National research shows 10-12% residential water use (loss) occurs through leaks
- Leaks can range from 2-20k gallons per house per month
What do they do?

• Monitors your home's water supply – inside and out?
• Catch leaks, prevent water damage
• Some allow for the shut-off of water at the device
Program Development

• New technology – no data on water savings
• Handful of products available to not only address site leaks but also help general household water use
• What is the behavior impact of these devices on overall house water use
• Created a simultaneous rebate program and research study (new to SNWA)
Coupon Programs – Smart Leak Detector

- Print coupon at SNWA.com
- Coupon value:
  - 50% of purchase price
  - Not to exceed $200
- Redeem by mail
- Participants enrolled in an SNWA study
- Launched February 2019
- Single family residential properties only
- Mandatory site visit prior to receiving rebate
• Want rebate to provide incentive to participate in research study
• Generally need two years of pre and post consumption data to make solid determination of savings so created a 5-year study
  • Will look at all devices rebated for two years to determine consumption impact
  • Samples of each device were submitted to Utah State for testing to verify accuracy
  • Need to develop customer and manufacturer language on sharing data
Data Sharing

- Data sharing ‘ok’ from customer and manufacturer
- Manufacturer agreement
Customer agrees to rebate program conditions as well as participation in the research study.

Customer submits completed coupon along with purchase receipt and box UPC to SNWA to trigger scheduling a site inspection.
Utah State University Testing

- Utilize USU bench testing to determine accuracy of devices
- Want to assure that device readings do not significantly deviate from utility meter readings
Utah State University Testing Results

Tested three (3) devices from each manufacturer!

<table>
<thead>
<tr>
<th>Feature</th>
<th>Flo*</th>
<th>Buoy</th>
<th>Flume</th>
<th>Phyn</th>
<th>Streamlabs (Water Monitor)</th>
<th>Streamlabs (Water Control)</th>
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<tbody>
<tr>
<td>Subscription req'd</td>
<td>X**</td>
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<td></td>
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<td>Flow Monitoring</td>
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<td>Pressure Monitoring</td>
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<td>Temperature Monitoring</td>
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<td>Alexa/Nest/Google Home Pairing</td>
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<td>Automatic shutoff</td>
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<td>Manual shutoff</td>
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<td>Water usage by fixture</td>
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<td>24/7 Live support</td>
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<td>Battery-powered</td>
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<td>Multiple Units from Single Device</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X (6)</td>
<td>X (2)</td>
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<tr>
<td>Warranty</td>
<td>1-year (3-year*)</td>
<td>1-year</td>
<td>1-year</td>
<td>2-year</td>
<td>2-year</td>
<td>2 or 5** year (7-year brass)</td>
</tr>
</tbody>
</table>

Notes:
* Only with FloProtect
** Only with StreamPlus Enhanced
# Utah State University Testing Results

<table>
<thead>
<tr>
<th>Device Type</th>
<th>Serial Number</th>
<th>15 gpm</th>
<th>2 gpm</th>
<th>0.50 gpm</th>
<th>0.25 gpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>BuoY</td>
<td>00500742</td>
<td>110.98%</td>
<td>99.65%</td>
<td>100.56%</td>
<td>99.79%</td>
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<tr>
<td>BuoY</td>
<td>00500175</td>
<td>106.76%</td>
<td>98.67%</td>
<td>100.56%</td>
<td>99.02%</td>
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<td>BuoY</td>
<td>00500154</td>
<td>112.94%</td>
<td>101.12%</td>
<td>99.60%</td>
<td>98.93%</td>
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</table>

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<tr>
<th>Device Type</th>
<th>Serial Number</th>
<th>15 gpm</th>
<th>2 gpm</th>
<th>0.50 gpm</th>
<th>0.25 gpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phyn</td>
<td>221746PP100C8E</td>
<td>100.98%</td>
<td>99.75%</td>
<td>100.66%</td>
<td>101.04%</td>
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<tr>
<td>Phyn</td>
<td>221817PP10038B</td>
<td>100.00%</td>
<td>98.77%</td>
<td>100.66%</td>
<td>99.12%</td>
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<tr>
<td>Phyn</td>
<td>221805PP100019</td>
<td>100.00%</td>
<td>98.77%</td>
<td>100.66%</td>
<td>97.19%</td>
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</table>

<table>
<thead>
<tr>
<th>Device Type</th>
<th>Serial Number</th>
<th>15 gpm</th>
<th>2 gpm</th>
<th>0.50 gpm</th>
<th>0.25 gpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flo</td>
<td>295375880012</td>
<td>99.02%</td>
<td>100.73%</td>
<td>89.09%</td>
<td>0.00%</td>
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<td>Flo</td>
<td>312911790038</td>
<td>101.96%</td>
<td>102.68%</td>
<td>114.21%</td>
<td>123.05%</td>
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<tr>
<td>Flo</td>
<td>312911790034</td>
<td>98.04%</td>
<td>96.81%</td>
<td>95.82%</td>
<td>87.57%</td>
</tr>
</tbody>
</table>

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<tr>
<th>Device Type</th>
<th>Serial Number</th>
<th>15 gpm</th>
<th>2 gpm</th>
<th>0.50 gpm</th>
<th>0.25 gpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Monitor</td>
<td>182000829WZU5</td>
<td>116.39%</td>
<td>125.15%</td>
<td>126.32%</td>
<td>90.26%</td>
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<td>Water Monitor</td>
<td>182000930WZU5</td>
<td>124.15%</td>
<td>137.66%</td>
<td>181.03%</td>
<td>283.83%</td>
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<tr>
<td>Water Monitor</td>
<td>182000945WZU5</td>
<td>116.39%</td>
<td>110.71%</td>
<td>147.21%</td>
<td>0.00%</td>
</tr>
</tbody>
</table>
Marketing

- Coordinated kick-off with Fix a Leak Week in March
- Bill inserts and brochure went out to approximately 600k households
- SNWA TV show called WaterWays held a segment on program as well as an SNWA Facebook live session
Buoy is a smart home water device that attaches to your water line and sends real-time data to an app that categorizes your water use, alerts you to leaks, and gives you the power to shut off water remotely.

**What is Buoy?**

1. **Install and connect**
   - Attached to your water line, Buoy’s sensors detect even the smallest water use. When you connect Buoy to WiFi, Buoy will send your water use data to the app.

2. **Download and learn**
   - Get the Buoy app and see how you use water around your home. Buoy automatically categorizes your water usage so you can see the big picture or dig into details.

3. **Shut it off and relax**
   - Buoy sends you an alert when it detects a leak. If you’re worried about damage, you can use the app to shut off your water remotely, giving you control and peace of mind.

**It’s as easy as 1-2-3**

*SOUTHERN NEVADA WATER AUTHORITY*
Secure your home, conserve your water.

Flo continuously monitors your home’s water supply to catch all leaks, prevent water damage and save you money. Say hello to smarter plumbing.

CES 2018 Innovation Awards Honoree

GIVE $50, GET $50

SOUTHERN NEVADA WATER AUTHORITY®
Flume

SOUTHERN NEVADA WATER AUTHORITY®
Phyn

01 PRODUCT FEATURES

LEAK ALERTS
Set alerts on mobile notifications when you're away, so you never have to worry about water damage again.

AUTOMATED SHUTOFF
If a leak exceeds the threshold, the Phyn automatically shuts off your water, saving your home from water damage.

PLUMBING CHECKS
Daily inspection of your home’s plumbing, helping prevent leaks, reducing water waste, and saving you money.

03 SINGLE DEVICE
One device. Whole home.

Many water issues require you to place multiple sensors around the home, but Phyn Plus is different. It’s a single device that protects your entire home’s water system from a single location. Phyn Plus also connects to your existing Wi-Fi so you don’t need to purchase an additional hub.
Manufacturers are partnering with local plumbers as well as conducting direct marketing.
Early Program Observations

- 265 Coupons Requested
  - Indicates interest in program but often purchase has not been made yet
- 84 Coupons have been submitted for rebate
- Coupons submitted for Flo, Flume, Phyn, Streamlabs and Buoy
- 80 site visits to date – first one on April 15, 2019
Site visit is mandatory in order to receive rebate check
Site Visit Survey

Questions asked include:
- Who installed the device
- Why they purchased a device – motivation
- Number of rooms, bathrooms, sinks, occupants etc.
- Are they aware of a leak
- Are they aware of indoor/outdoor/both being captured?
- How do they like the app

Things we determine from site visit:
- Verify device and app installed and working
- Verify what is being captured – indoor/outdoor or both
- Document installation location
Site Visit Survey Results to Date

Demographics

- Avg Age – 58
- Avg Household Income - $126k
- Avg Family Size – 2.24
- Avg Home Value - $538k
Site Visit Survey Results to Date

Percentage of people who discovered a leak after installing the device – 17%
Site Visit Survey Results to Date

• Who Installed
  • 57% Self and 43% plumber
• Installation cost if through a plumber
  • $100-$700 (higher installation cost involved work with PRV)
• Previous leak impacted decision – 21%
Site Visit Survey Results to Date

• Capturing Indoor/outdoor or both
  • All Flume capture all water use but no shutoff capability
  • 57% of Phyn capture indoor and outdoor – primarily installed by one plumber
  • 20% of Flo capture indoor and outdoor
  • 29% also had a smart irrigation controller
• Just starting to collect consumption data
Added language to website to address installation of devices if a fire sprinkler system is present:

Important notice for homes with automatic residential fire sprinklers: Improperly installing a leak detector device could hinder operation of fire sprinklers. Always ensure plumbed leak detection devices are installed only on the domestic water line after it diverts from the fire sprinkler system. Never install a leak detection device into your home’s main water service line upstream of the fire sprinkler system. Consult a licensed plumber for guidance.
Initial Issues

* Capturing outdoor water use in addition to indoor for devices that are located inside the garage

* Many homes in Southern NV have irrigation shut off prior to the garage

* With so much residential water use occurring outside, how beneficial are devices if not capturing outdoor?