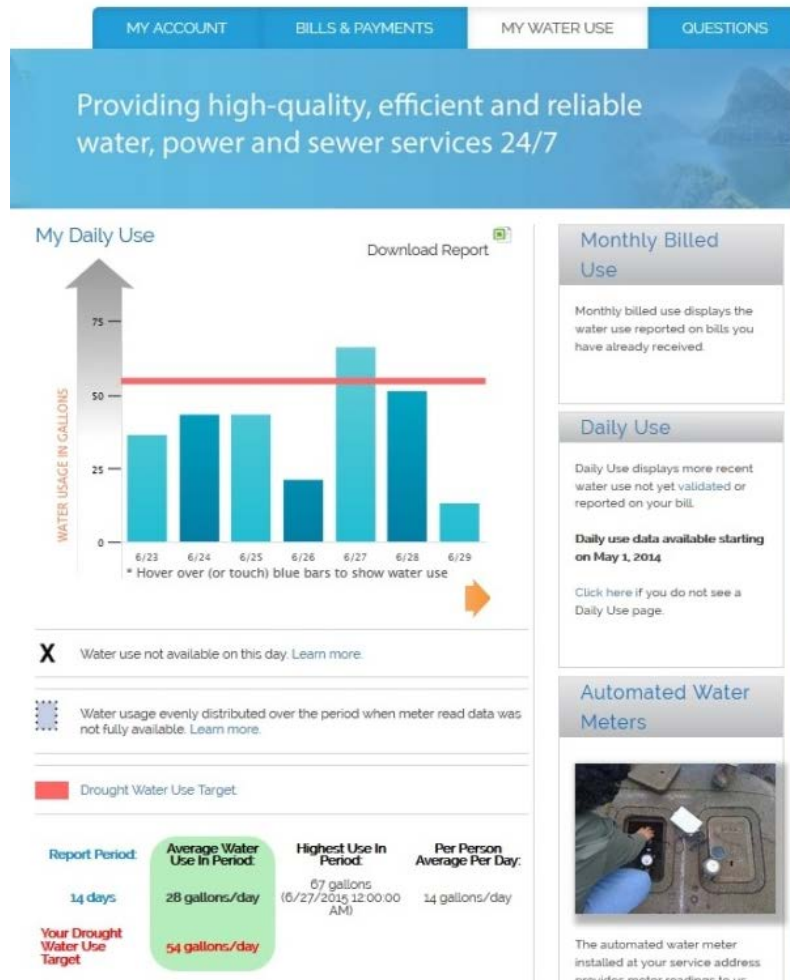


This presentation premiered at WaterSmart Innovations

watersmartinnovations.com





Do's & Don'ts of Sharing Good AMI Data with Customers

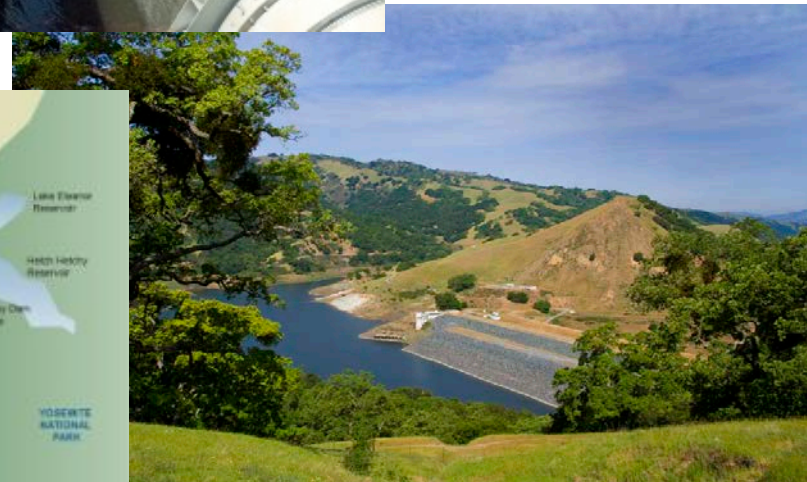
Heather Pohl, AMI Program Manager
Julie Ortiz, Water Conservation Manager



San Francisco Water, Power, Sewer

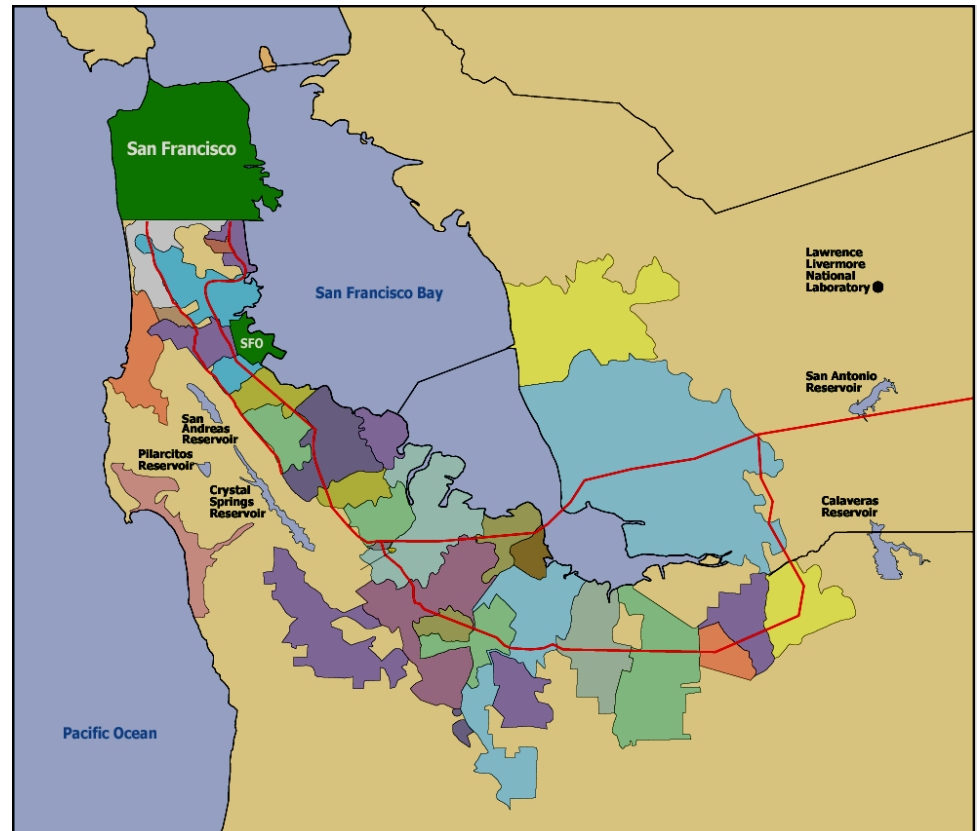
Water System Components

- 280-plus miles of pipelines
- 60-plus miles of tunnels
- 11 reservoirs
- 5 pump stations
- 2 water treatment plants



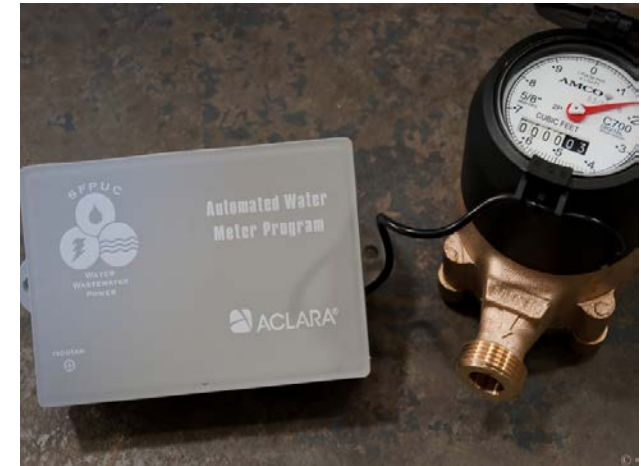
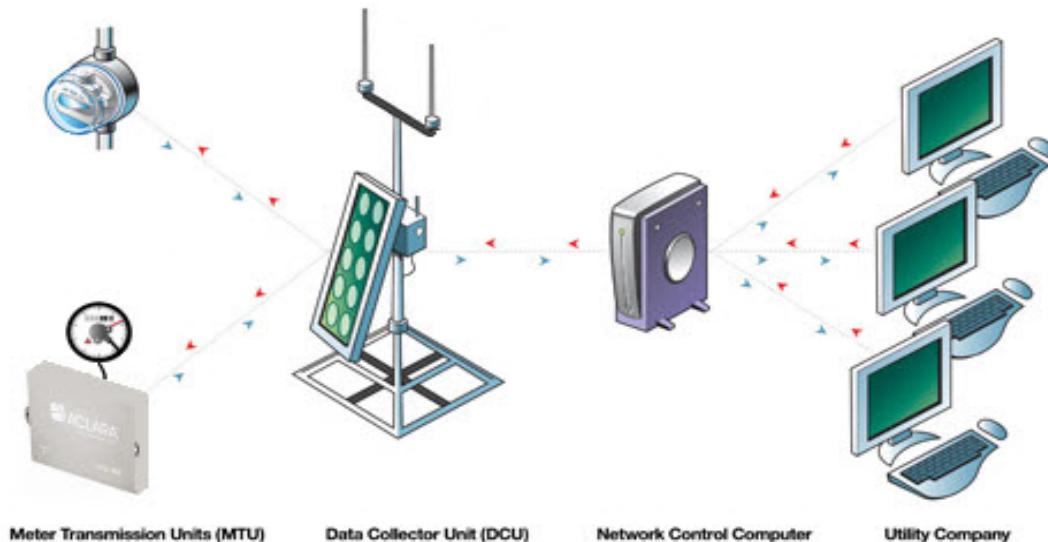
2.6 million depend on SFPUC water supply

- 27 wholesale water agencies
- SF Retail water, power, sewer
 - 178K customers
 - Mostly residential in meter pits
 - 750 Large/CII meters



Automated Water Meter Program

- San Francisco Retail Customers – 178,000 Accounts, 95% deployed
- Fixed Network AMI Technology – Aclara STAR System with hourly data
- AMI monthly billing June 2013
- **MyAccount** in-house customer portal May 2014 – account info, bills, daily water use
- Leak Notification Pilot April 2015 – Single Family accounts with 3-day continuous use



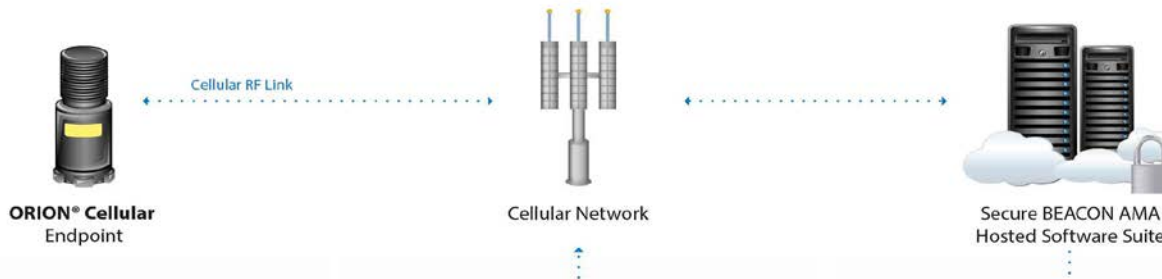
Wholesale Customer AMI Pilot

- 214 wholesale meters in 3 Bay Area counties
- 75% deployed, QA ongoing against manual reads
- Badger Beacon Cellular AMI technology
- Cloud-based software with “Eye on Water” for customer data sharing and alerts



ORION Cellular
Endpoint

Cellular Network





Managing the AWMP Data

Hourly meter reads for 178,000 accounts =
1.6 Billion reads/year

SFPUC Data Sharing “Don’ts”

Don’t share incomplete data

- Use midnight read to capture full day of water use

Don’t imply when usage occurred if data is uncertain

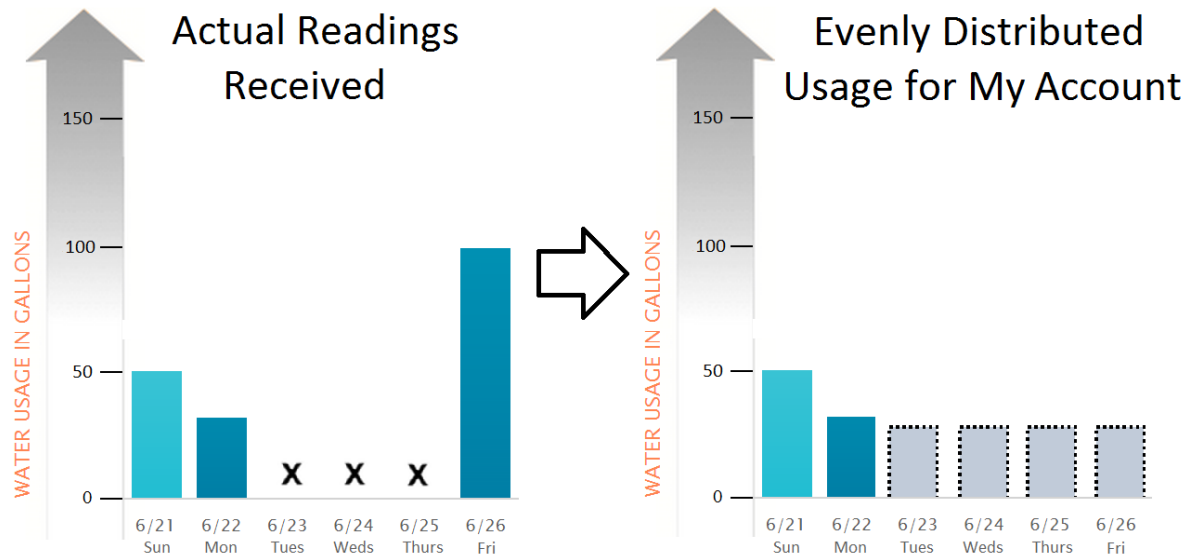
- Be clear about showing multi-period usage where reads are sporadic

Don’t share data without screening out errant readings

- Screen for negative consumption or extreme usage spikes (max meter flow or avg use)

Don’t share data that doesn’t consider meter exchanges or dial rollovers

- Build system to track field exchanges and reprogram events, and to handle rollover readings



SFPUC Data Sharing “Don’ts”

Don’t share data with anyone but the account-holder

- Only show data that the current account-holder is responsible for at the particular service point (e.g. don’t show past owner data)

Don’t share data that doesn’t match with the billing system

- Synchronize daily with billing records, including adjustments

Don’t present data that will confuse customers and increase your call volumes, unless you are prepared to handle it

- Determine what will be most useful and feasible to present and anticipate questions data will bring



Data Screening Processes

Data screening for bills – 178,000 reads per month

- Performed by CIS for one read/month/account
- Meter Number check
- Hi/lo use check against previous bills

Data screening for *MyAccount* – 178,000 reads per day

- Performed by ADR Screening Tool for one read/day/account
- Meter Number check
- Multiple Meter Transmission Unit (MTU) check
- Customer and Account Info check
- Verification/aggregation for multi-meter accounts
- Spike/dip check on previous day usage for erroneous readings, field exchanges and programming events, meter rollovers
- Missed Read Periods – backfill process

SFPUC Data Sharing “Do’s”

Do share manageable screened interval data with customers

- MyAccount online portal daily usage available between Noon and 8PM the following day
- MyAccount Drought Target Line overlays daily data and billed usage for easy comparison and monitoring of Drought targets

Do notify customers if you suspect they have leaks

- Define what a leak is for your customer types and what visibility you have to it
- Be clear about the information you are sharing and what you are offering to help with

Do monitor participation

- Are the tools you are paying for to develop and maintain proving to be useful to the customer and the Utility

Empower Staff & Customers

- **By sharing good data:**
 - Expands staff ability to educate, advise and diagnose
 - Increases customer understanding and management of their water use



Clarify How Data Is Shared

- **Staff consultation**
 - Using in-house database to spot unusual spikes, continuous usage & hourly, daily, and seasonal patterns
 - Customized reports for large users
- **My Account “self-help” web portal for customers**
 - See daily use and targets, monthly billed use and \$, patterns and spikes
- **Leak alerts for single family customers**
 - Sent to all with 3 days of continuous usage, no opt out

Train Staff and Anticipate Questions

- Provide staff training on all tools, and guidance on what to say and show customers
- Prepare for increased customer inquiries
- User test tools with staff and customers; pilot first
- Don't expect all customers to use self help tools or understand data, no matter how well presented

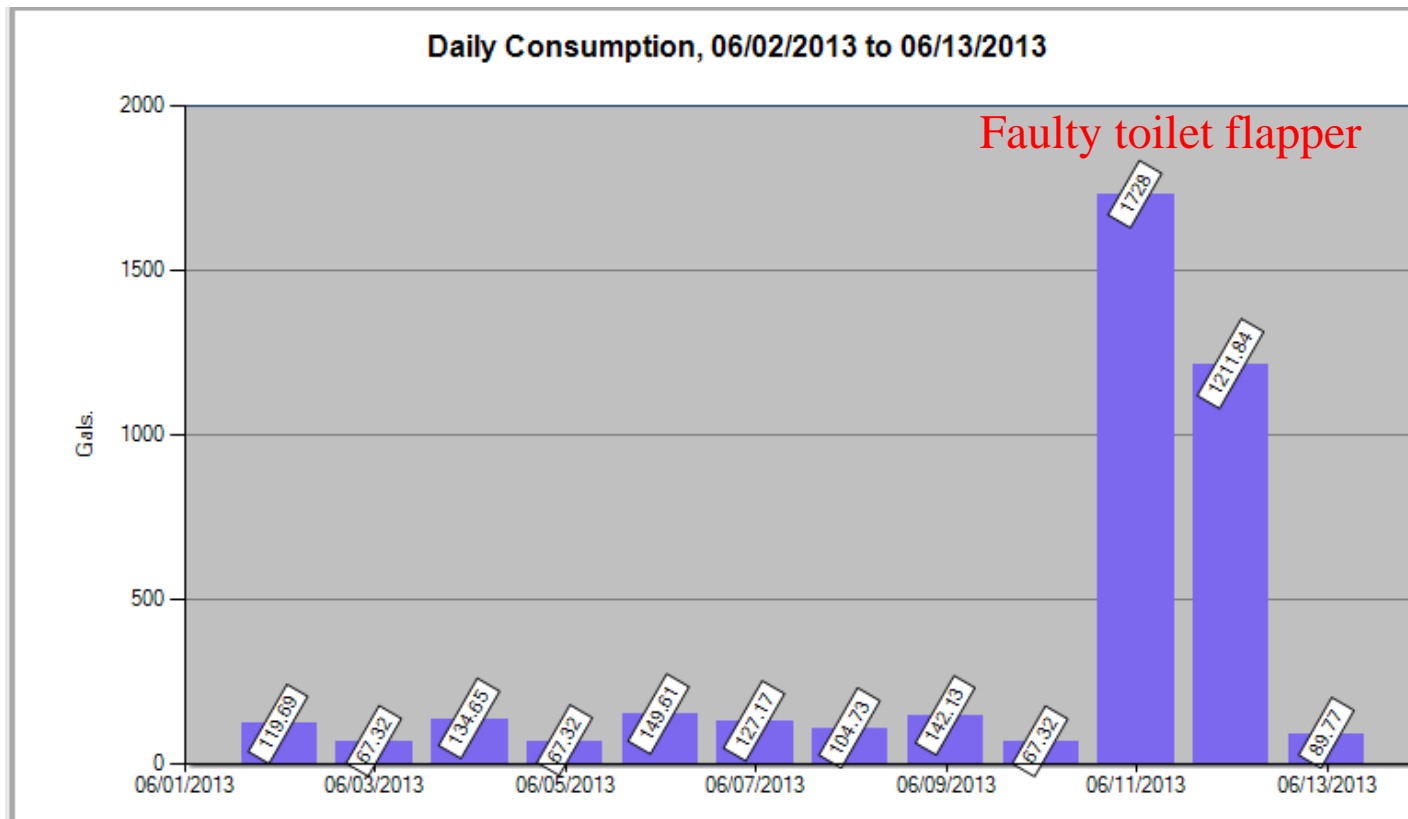


Examples of Data Sharing...



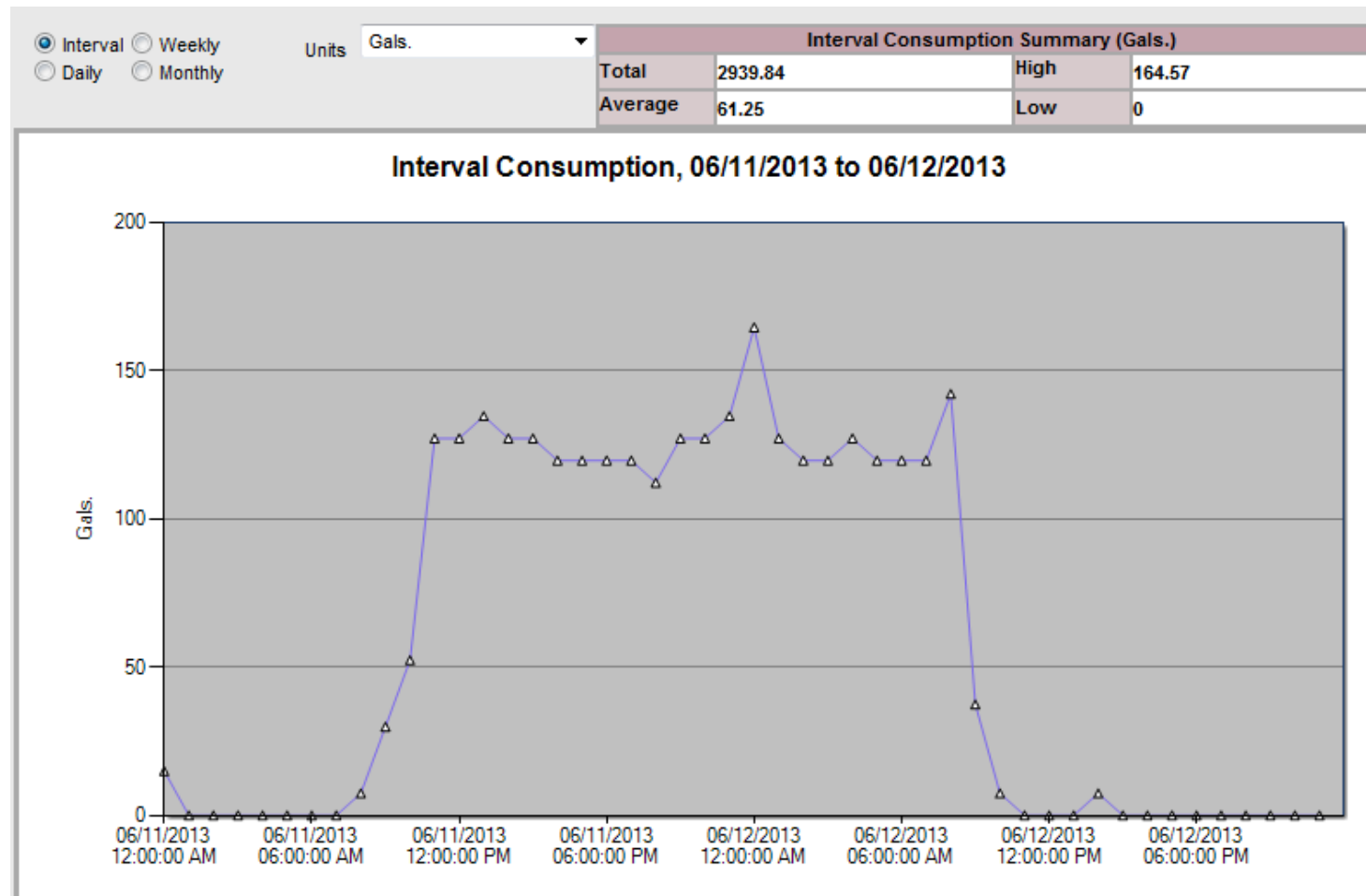
Toilet Leak in Single Family Home

Data showing how much water a faulty toilet flapper wasted a day, reinforces importance of prompt leak fixes.

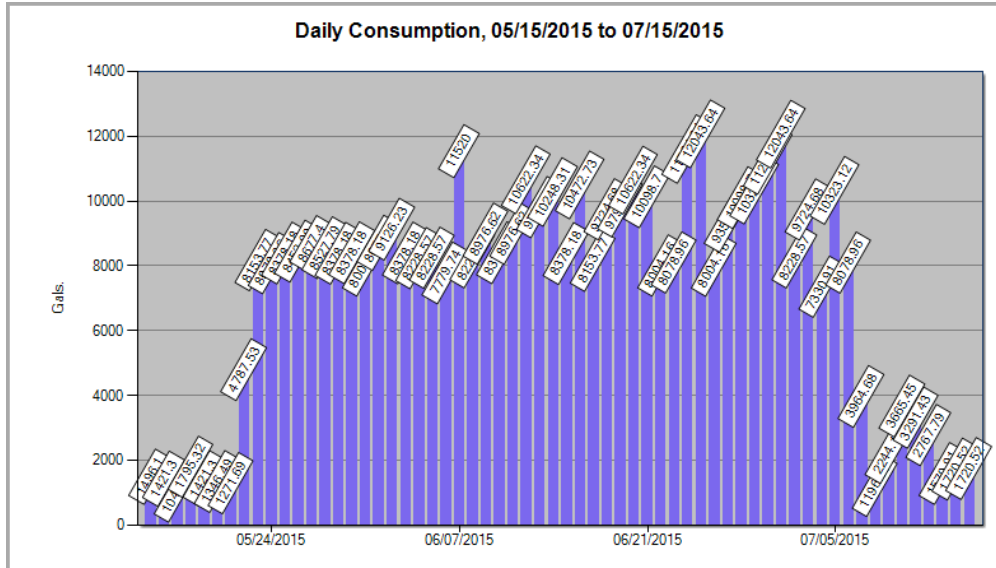


Hourly Data for Same Toilet Leak

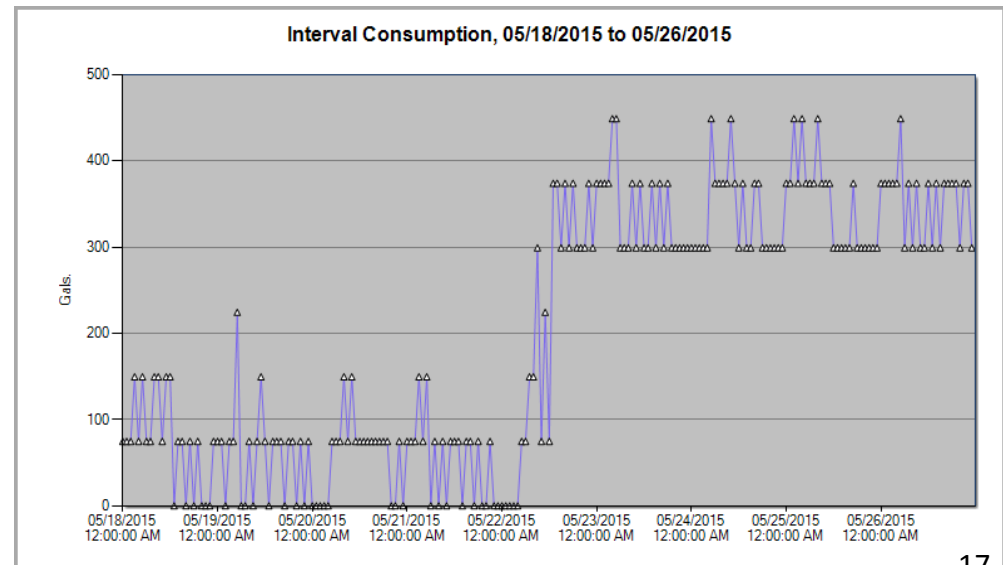
Leak wasted over 100 gal/hr or 2 gal/min. If continued 3 days would have triggered leak alert by SFPUC.



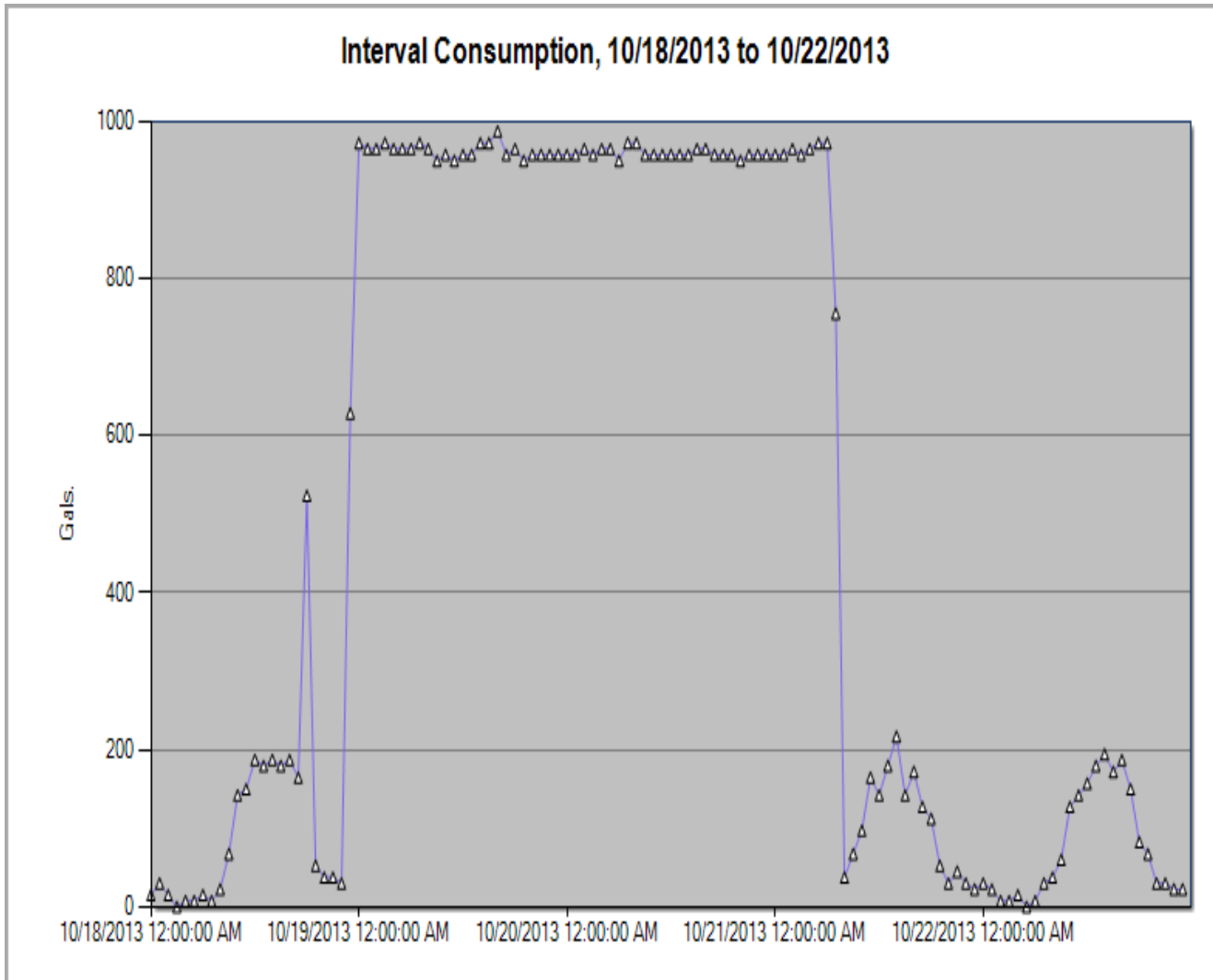
Malfunctioning Fountain at Municipal Building



Review of daily and hourly data helped identify cause of usage increase due to 45-day 1,200 gallon/hr leak from stuck float on fountain



Usage Spike in Office Building



Review of hourly data helped building engineer identify cause of a high bill: 2,000 gal/hr spike from hung up urinal flush valve that occurred at night after maintenance staff left. (Data for only one meter shown.)

Meeting Drought Target

10% Reduction in Effect

All customers are asked to reduce water use by 10%.

Compare your [Drought Water Use Target](#) to your last bill below or your daily use [here](#).

- Drought target for 2-unit apartment based on 2013 when only 1 occupant → now 4 occupants.
- Customer instead tracking average per person usage to gage water efficiency

MY ACCOUNT
BILLS & PAYMENTS
MY WATER USE
QUESTIONS

Providing high-quality, efficient and reliable water, power and sewer services 24/7

My Daily Use Download Report



* Hover over (or touch) blue bars to show water use

Monthly Billed Use

Monthly billed use displays the water use reported on bills you have already received.

Daily Use

Daily Use displays more recent water use not yet validated or reported on your bill.

Daily use data available starting on May 1, 2014

[Click here](#) if you do not see a Daily Use page.

Automated Water Meters



The automated water meter installed at your service address provides meter readings to us

X Water use not available on this day. [Learn more.](#)

Water usage evenly distributed over the period when meter read data was not fully available. [Learn more.](#)

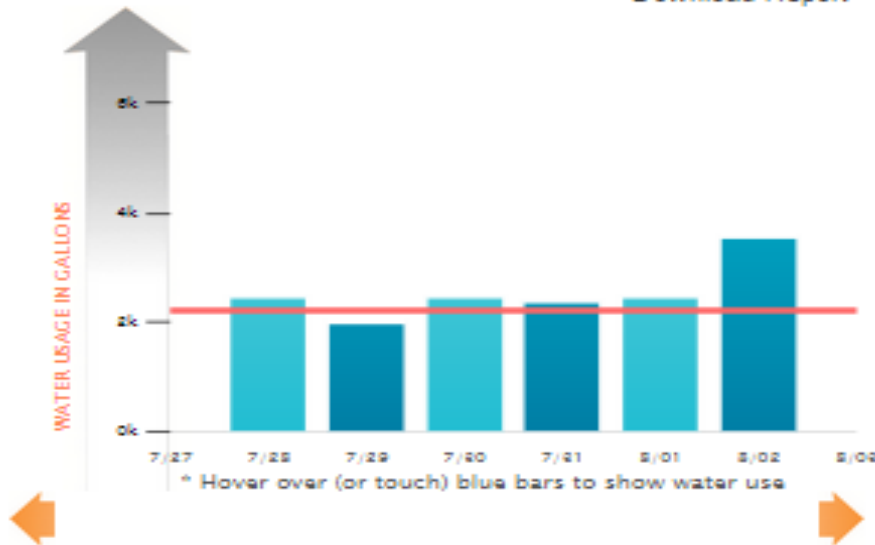
Drought Water Use Target.

Report Period:	Average Water Use in Period:	Highest Use in Period:	Per Person Average in Period:
14 days	218 gallons/day	345 gallons (9/16/2015 12:00:00 AM)	54 gallons/day
Your Drought Water Use Target	44 gallons/day		


Monitoring for Leaks and Spikes

My Daily Use

Download Report



X Water use not available on this day. [Learn more.](#)

 Water usage evenly distributed over the period when meter read data was not fully available. [Learn more.](#)

 Drought Water Use Target.

Report Period:

379 days

Average Water Use In Period:

1892 gallons/day

Highest Use In Period:

4338 gallons
(4/29/2015 12:00:00 AM)

Per Person Average In Period:

79 gallons/day

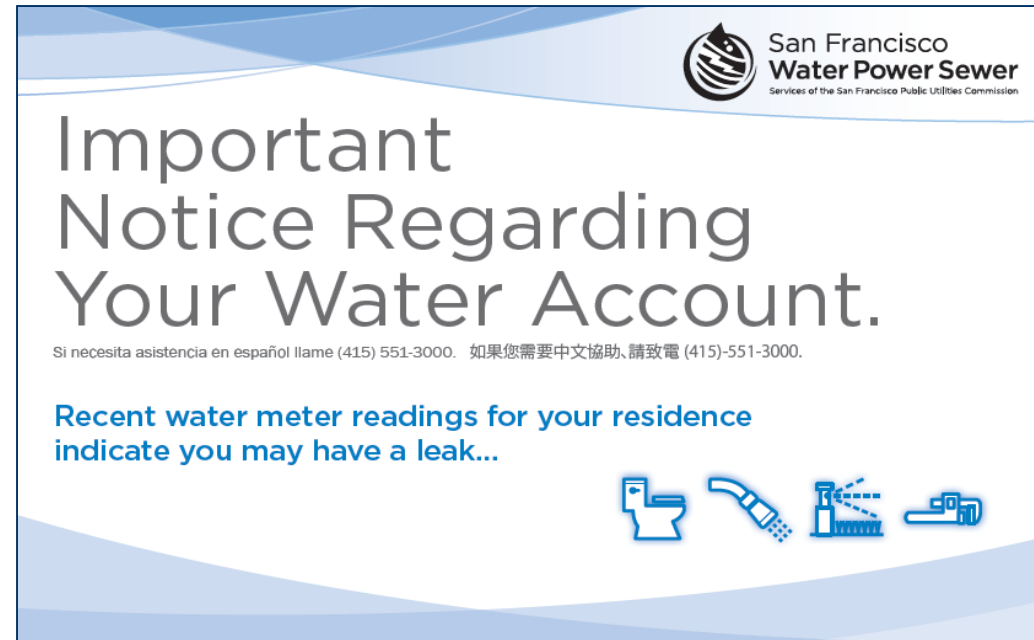
Your Drought Water Use Target

2146 gallons/day

24-unit apartment building that had two water-wise evaluations now monitoring use and can quickly see spikes from a few toilets that intermittently malfunction

Response to Pilot Leak Alert Program

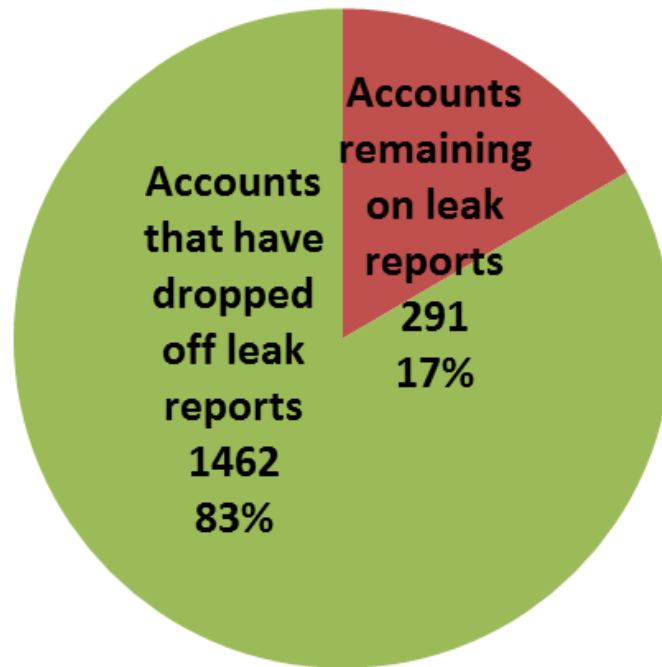
- Launched April 2015
- Send weekly postcards to single family accounts with over 7 gallons/hr (0.1 gal/min) of continuous use over 3 days
- Considering email, text, and/or phone messages



Over 80% of 1,753 Notified in First 5 Months Dropped Off List

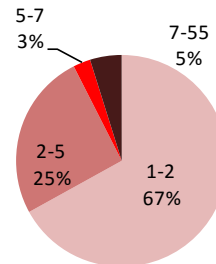
Analysis of WEEK 1-22 Leak Accounts

(Total Accounts = 1753)

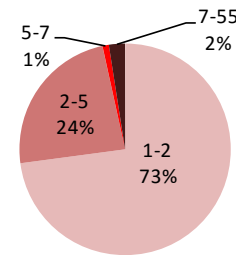


Leak Rate (CF/hr) for Remaining Accounts

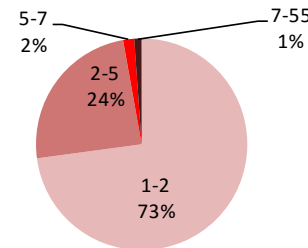
Week 23 (8/29) - 227 accts



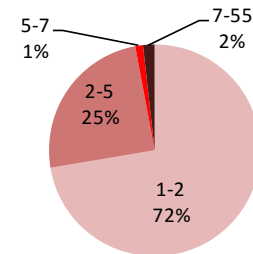
Week 24 (9/5) - 203 accts



Week 25 (9/12) - 177 accts



Week 26 (9/19) - 170 accts



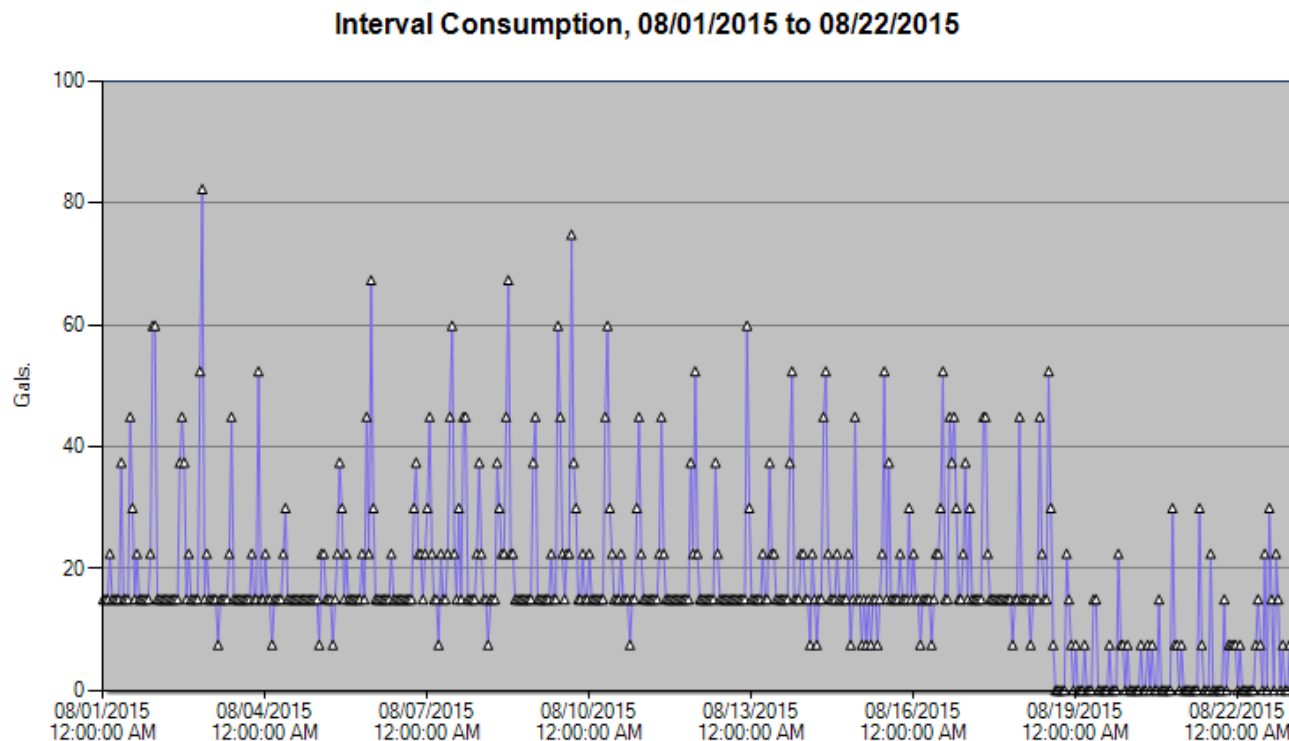


Takes Effort to Reach Chronic Users

- Conducted follow up to 66 accounts with 18 weeks continuous usage, 15 gal/hr (0.25 gal/min) average continuous usage rate
- Reached 26, most acknowledged problems with leaks, mainly toilets, and were in process of hiring plumbers or trying to fix
- 22 stopped continuous usage; estimated potential 1.2 million gallon savings by year end
- Implications for expanded program
 - Need updated contact info, more emails, continued ways to reach non-English speakers and off-site account holders
 - Continued conservation assistance

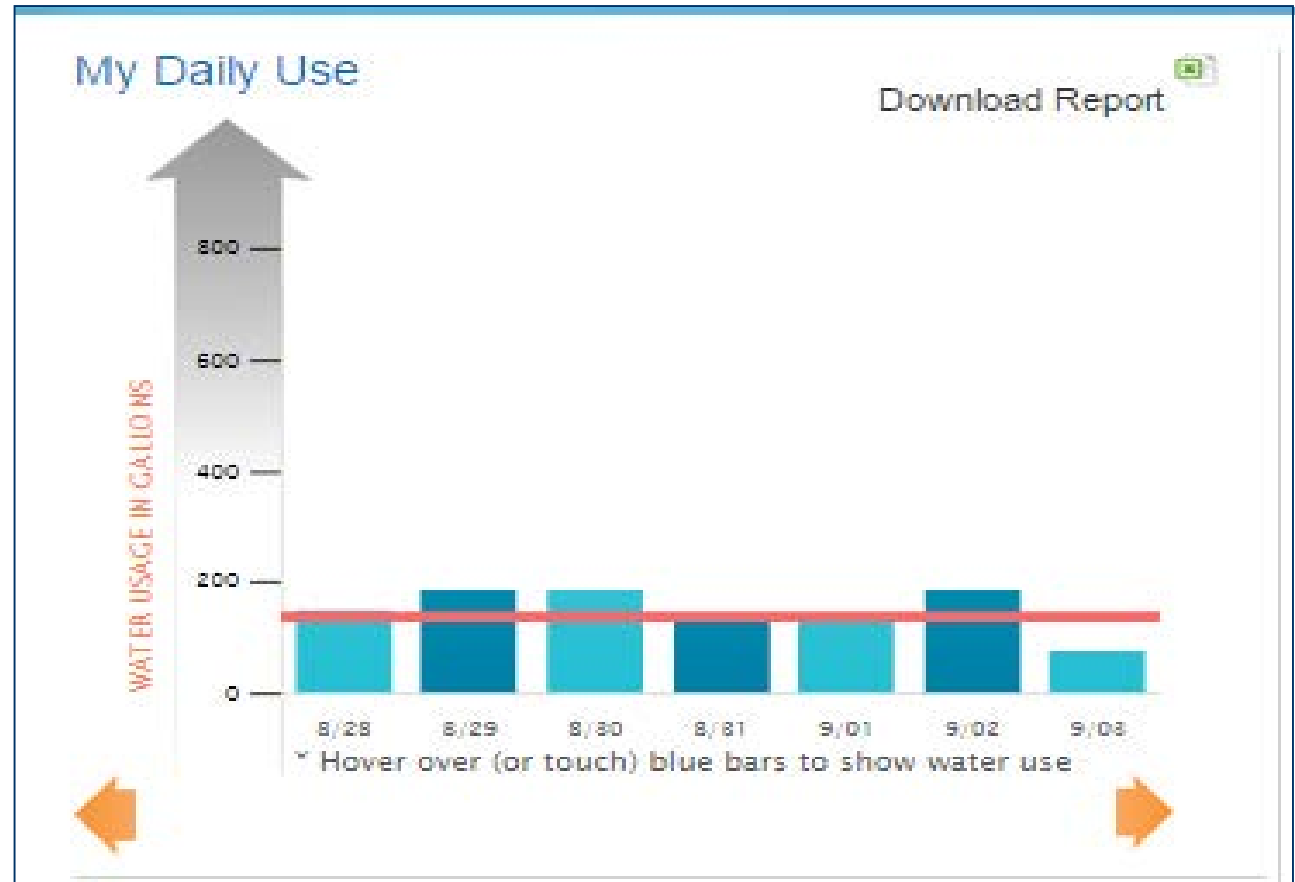
Benefits Can Pay Off in Water Savings

2-flat home on leak alert list for weeks immediately stopped 7 gal/hr continuous usage after onsite water-wise evaluation fixed toilet leaks and installed water-saving devices, saving estimated over 24,000 gallons by end of 2015.



And Customer Water Use Awareness!

Same customer also now on My Account and able to monitor daily use. Daily use now within target range and way down from before.



For More Information



@SFWATER

or visit www.sfwater.org

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