

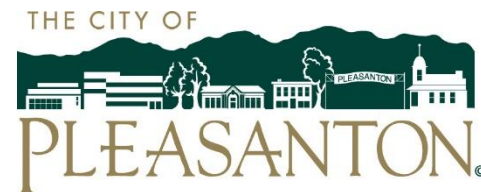
Per- and  
polyfluoroalkyl  
Substances (PFAS)



# PFAS And Other Update

**Pleasanton Chamber of Commerce  
Economic and Development Relations  
Committee**

April 28, 2020



# Presenters

- ❖ Dan McIntyre, General Manager,  
Dublin San Ramon Services District
- ❖ Valerie Pryor, General Manager, Zone 7  
Water Agency
- ❖ Kathleen Yurchak, Director of  
Operations and Water Utilities, City of  
Pleasanton

# COVID-19

- ❖ Your water is safe to drink and use
- ❖ The EPA recommends that you continue to drink and use your water
- ❖ Treatment methods kill viruses
- ❖ DSRSD, Pleasanton and Zone 7 have taken steps to protect employees and maintain operations

# Presentation Outline

## ❖ Zone 7

- About PFAS
- Regulatory Guidelines – Current and Upcoming
- Treatment Options
- Zone 7 Results and Actions Taken
- Upcoming Zone 7 Activities

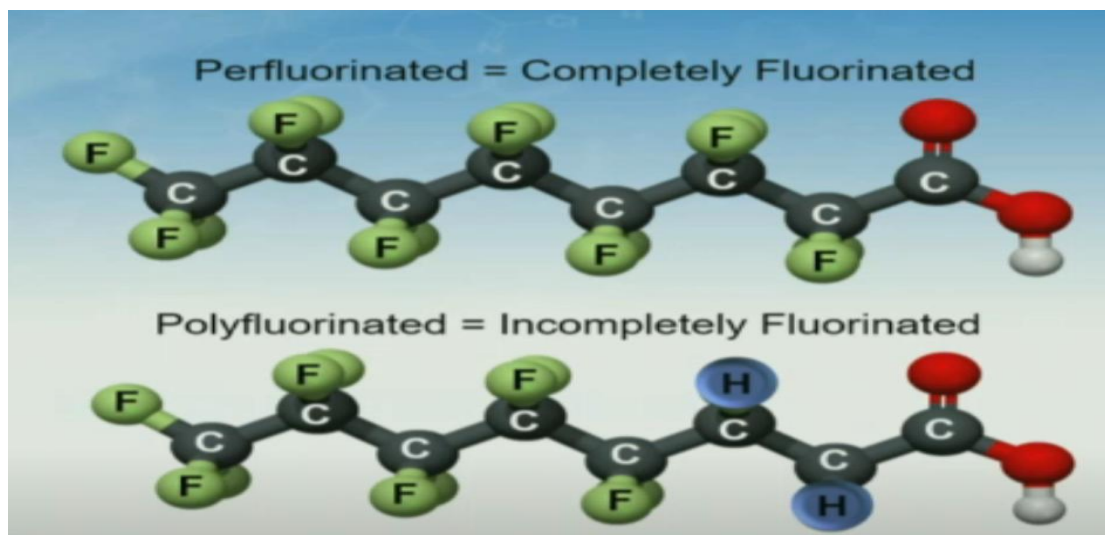
## ❖ Pleasanton

- Pleasanton Results
- Public Notifications
- Actions – Near-term and Long-term

# What are PFAS?

## Per-FluoroAlkyl and Poly-FluoroAlkyl Substances

A large family of man-made compounds used in a wide-range of products designed to be waterproof, stain-resistant, non-stick, or fire retardant since 1940s

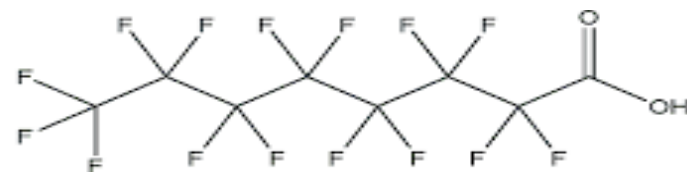


C-F is the shortest and strongest bond in chemistry

# What are PFAS?

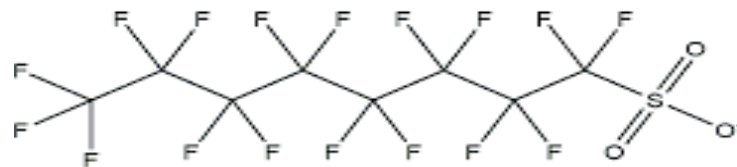
❖ PFAS represent >6,300 organofluorine compounds categorized by “long-chain” & “short-chain”

– PFOS and PFOA are “long-chain” (C8 = 8 C-F bonds = octane)

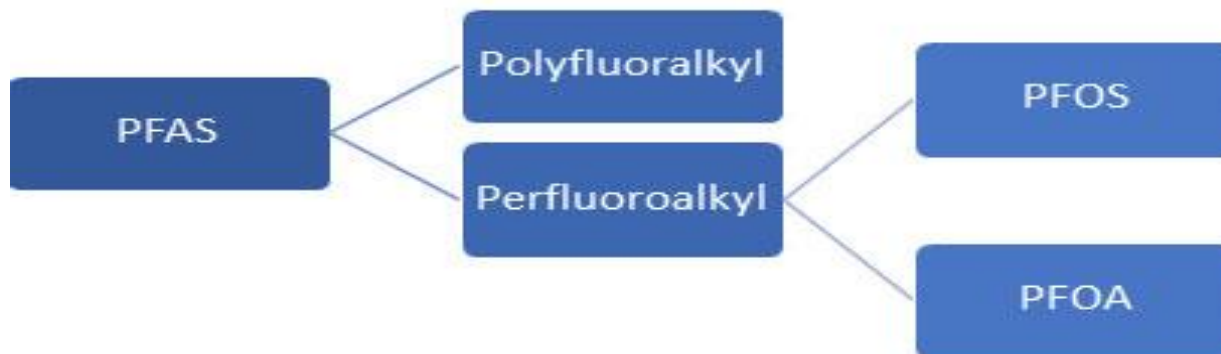


Perfluorooctanoic acid (PFOA)

– GenX is a “short-chain” replacement for PFOA



Perfluorooctane sulfonate (PFOS)





# PFAS occurrence is common



Food Packaging → **PFOA** ← Teflon



AFFF → **PFOS** ← Scotchgard

# Why are we concerned about PFAS?

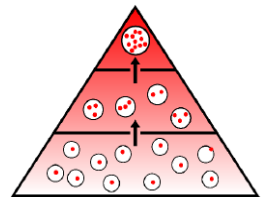
- ❖ **Ubiquitous** – clothes, food, water, air, soil, even in human and animal blood samples
- ❖ **Persistent** (*Forever Chemicals*) – extremely stable, do not break down easily, challenging to treat
- ❖ **Potential adverse health effects** to developing fetus/infants, immune system, liver, and possible cancers (e.g., testicular, kidney)
- ❖ **Unregulated Emerging Contaminant of Concern (CECs) in Drinking Water**
  - Widespread contamination in all types of water supplies
  - Tend to accumulate in groundwater
  - Mobile in groundwater



High Temperature  
Stability



Resistant to  
Biodegradation



Bioaccumulative

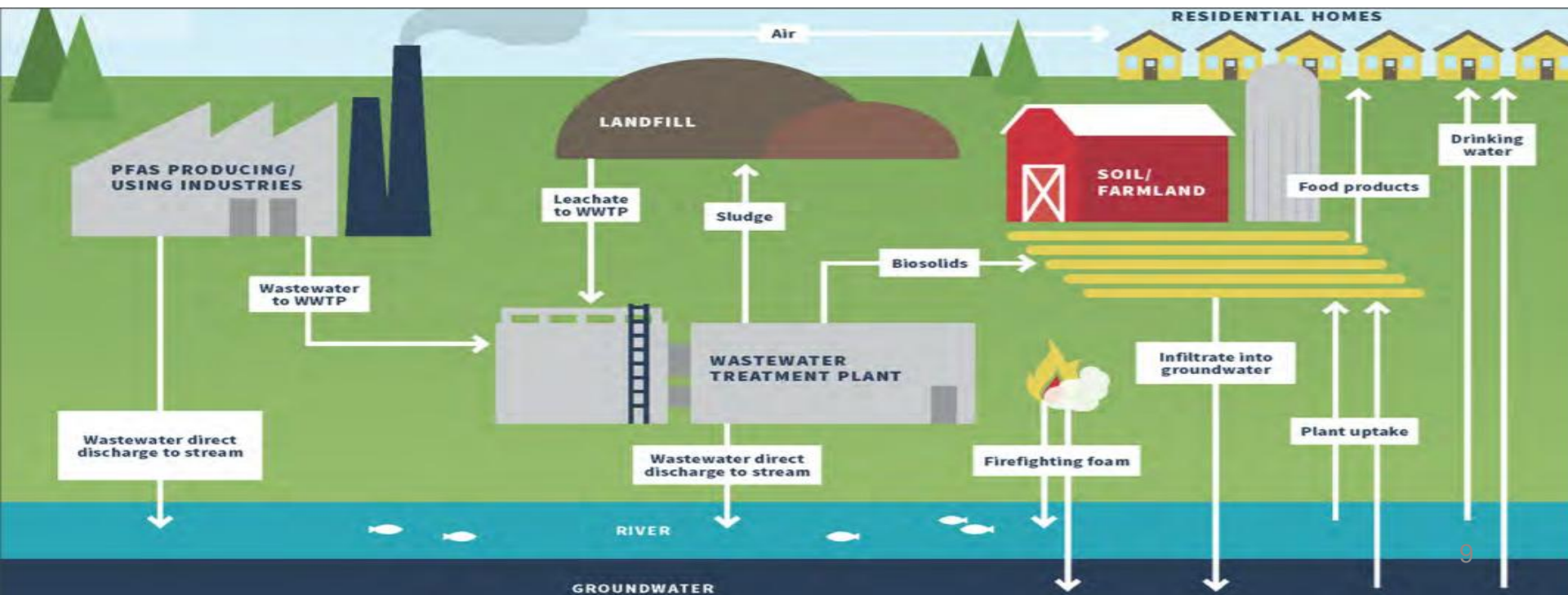


Soluble in Water



# Major Sources of PFAS in Drinking Water

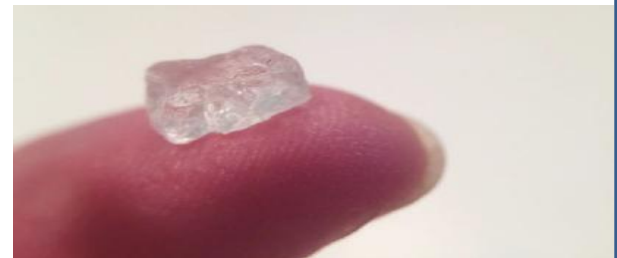
- ❖ **Primary Industrial Manufacturing** – 3M, DuPont, etc.
- ❖ **Secondary Industrial Manufacturing** – paper, chrome-plating, etc.
- ❖ **AFFF** - Military sites, airports, refineries, fire training/response sites
- ❖ **Waste management units** – landfills, wastewater treatment plants (WWTPs), biosolids, etc.



# FEDERAL REGULATORY GUIDANCE

- ❖ In 2016 EPA Issued lifetime health advisories in drinking water
  - 70 parts per trillion (ppt) for PFOA and PFOS, either singly or combined
- ❖ Moving Forward
  - PFAS monitoring in next Unregulated Contaminant Monitoring Rule (UCMR 5)
    - Anticipating proposal in summer 2020 and final rule by late 2021
    - Monitoring ~2022 - 2026
  - PFOA/PFOS MCLs
    - Anticipating proposal in ~2 yrs and final MCLs in ~4 yrs;
  - Other PFAS MCLs
    - Under evaluation

*1 Parts per trillion (ppt) = 1 grain of salt in an Olympic-size pool*



# Current State Regulations

- ❖ State Water Board issued guidance
  - Notification level (NL) - **August 2019**
    - PFOA = 5.1 ppt
    - PFOS = 6.5 ppt
  - Response level (RL) - **February 2020**
    - PFOA = 10 ppt
    - PFOS = 40 ppt
- ❖ AB 756 - **Effective January 1, 2020**
  - Authorizes Water Board to order additional PFAS monitoring as needed;
  - If detect any PFAS under AB 756 order, additional notification and response would be required;



# Upcoming State Regulatory Activities

- ❖ Release draft Public Health Goals (PHGs) for PFOA/PFOS ~ **by the end of 2020**
- ❖ Complete State-wide PFAS source investigation – **by the end of 2020**
- ❖ Propose draft Maximum Contaminant Levels (MCLs) for PFOA/PFOS ~ **Summer 2022**
- ❖ Adopt final MCLs for PFOA/PFOS ~ **Fall 2023**
- ❖ Other PFAS – **under evaluation**



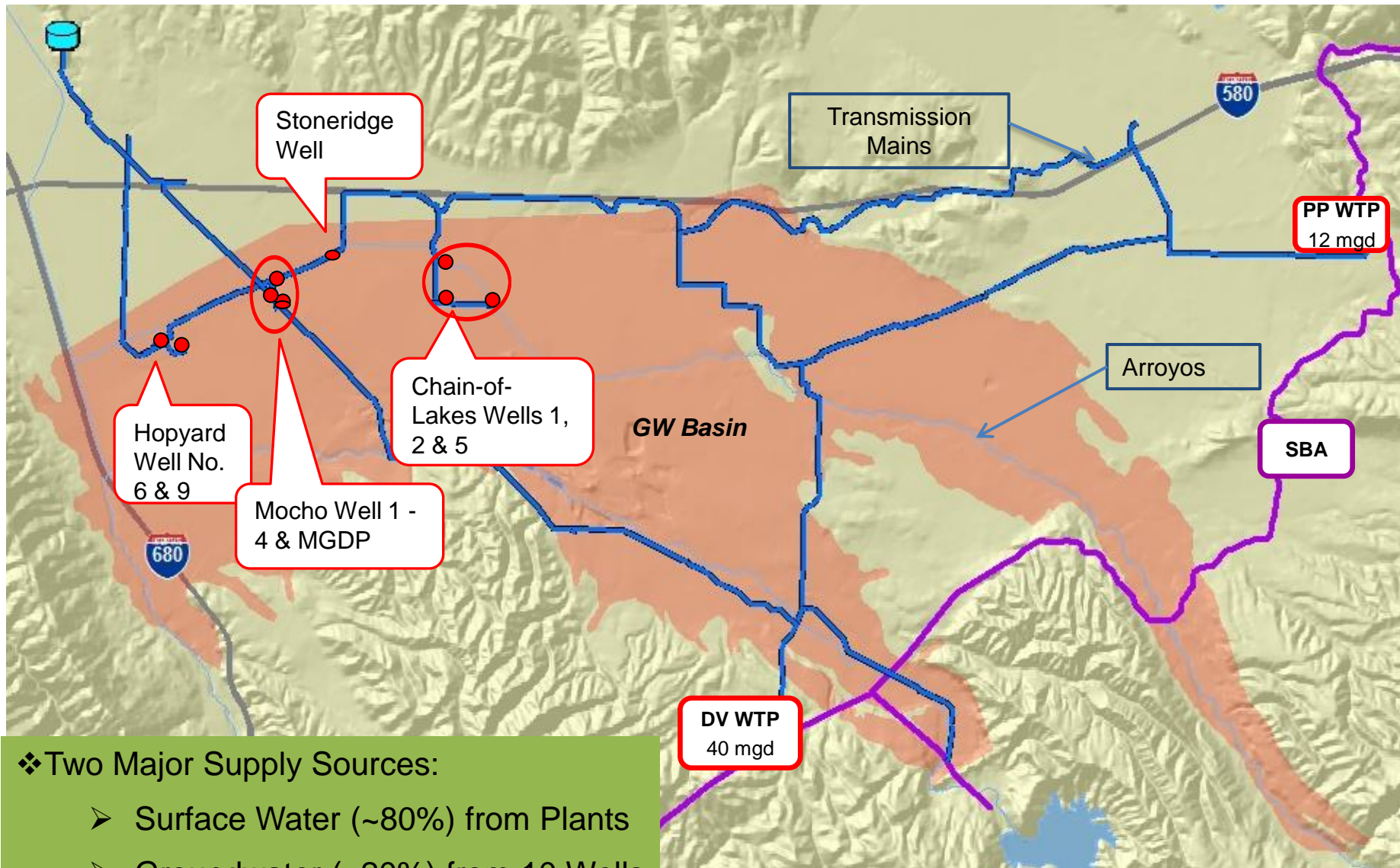
# Zone 7 Activities –

## Source and Treated Water Monitoring

- ❖ Proactively monitored for 6 PFAS at representative sources in 2013
  - None detected;
  - Method Reporting Limits (MRLs) were much higher than current method (~10-45x higher).
- ❖ Proactively monitored for 14 PFAS at all sources (Nov '18 – Jan '19)
  - PFOA & PFOS MRLs are much lower (2 ppt);
  - PFOA & PFOS detected at some groundwater wells (COL, Mocho & Stoneridge)
  - PFOA & PFOS not detected in surface water supplies & Hopyard wells
  - Other PFAS detected, but no regulatory guidelines available
- ❖ Completed 4 quarters of monitoring (18 PFAS) per State Order in 2019 – All treated water samples below RLs;
- ❖ Plan to continue voluntary sampling in treated water samples.



# Zone 7 Water System

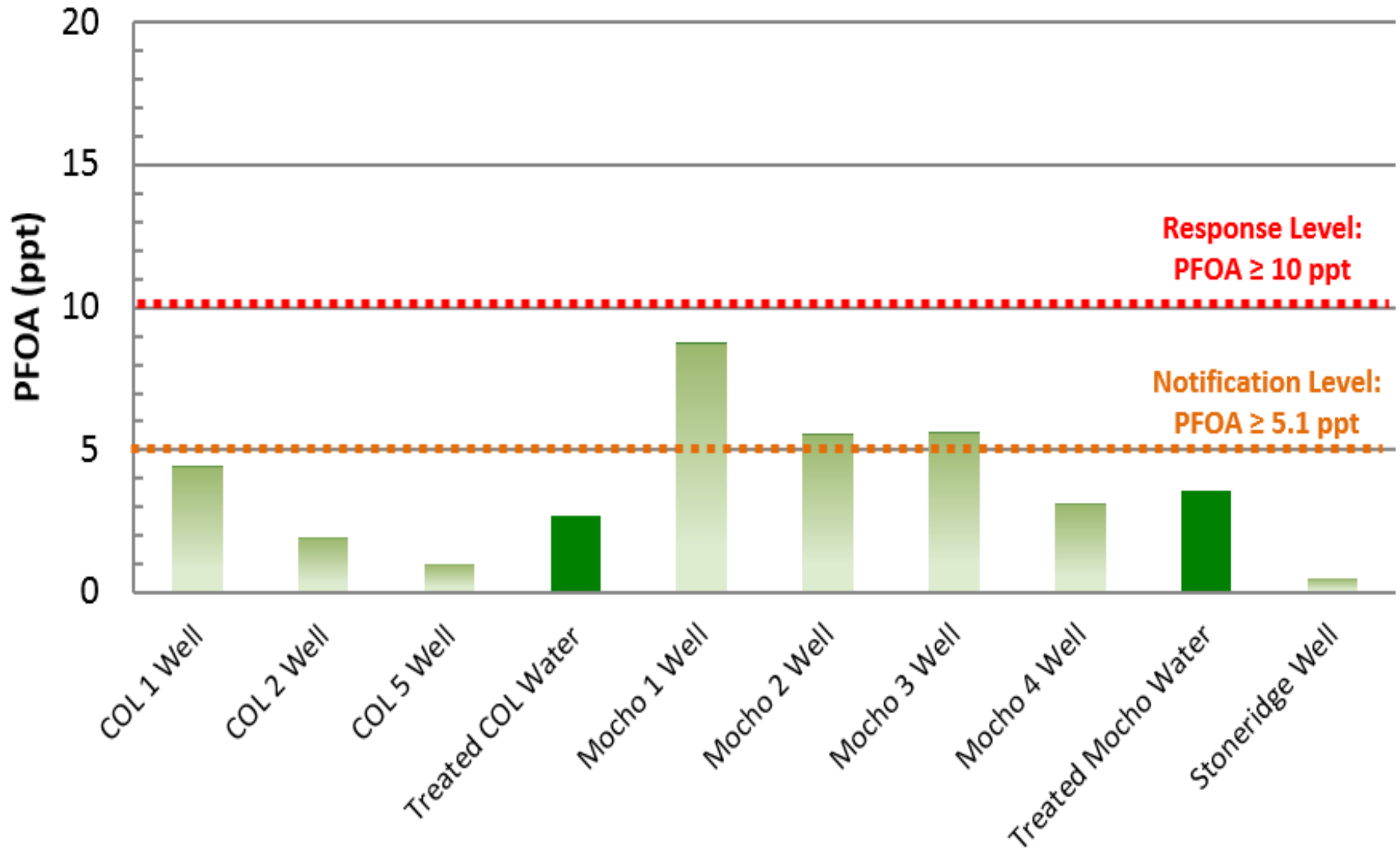


## ❖ Two Major Supply Sources:

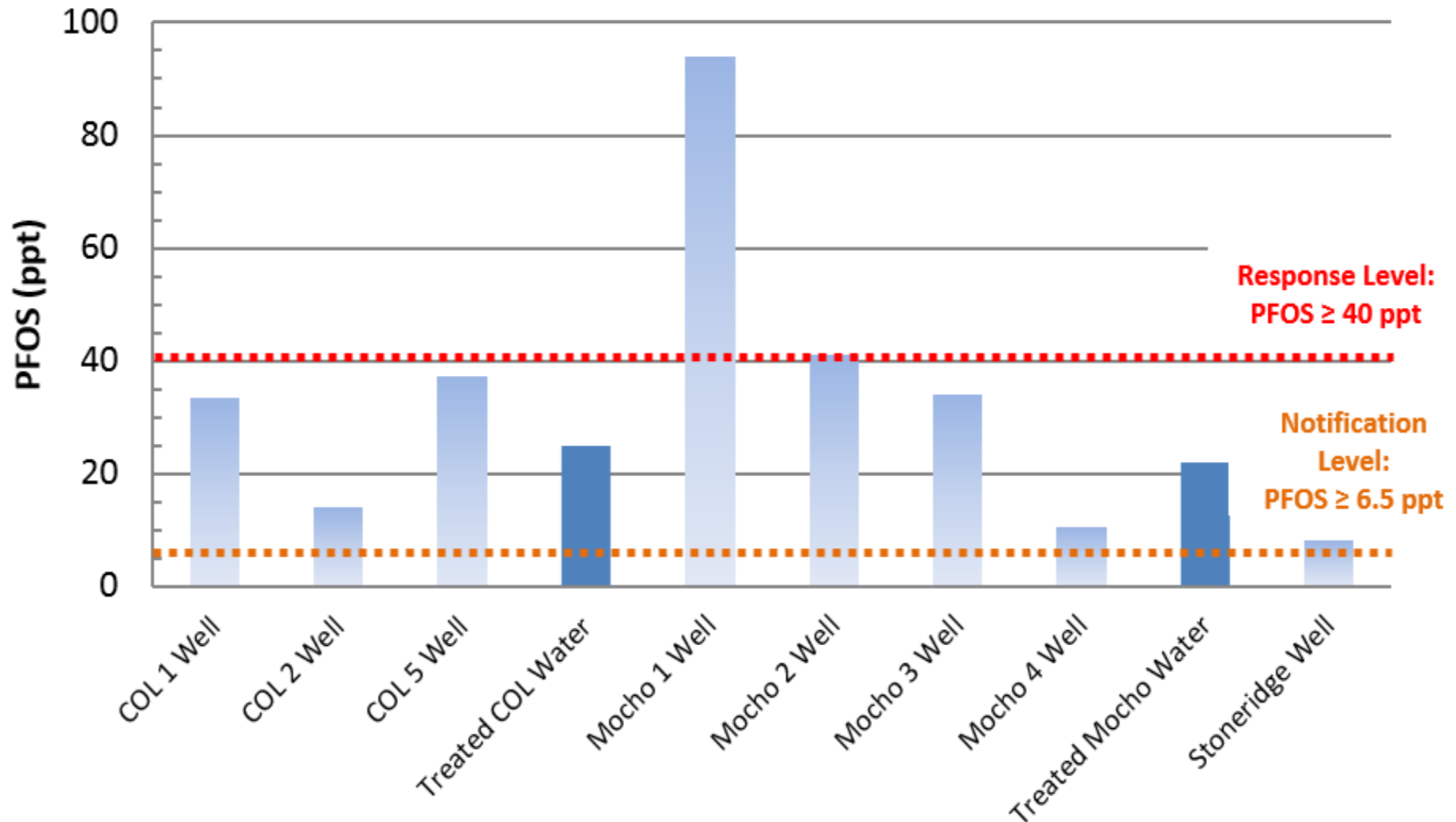
- Surface Water (~80%) from Plants
- Groundwater (~20%) from 10 Wells



# PFOA 2019 Quarterly Averages



# PFOS 2019 Quarterly Averages



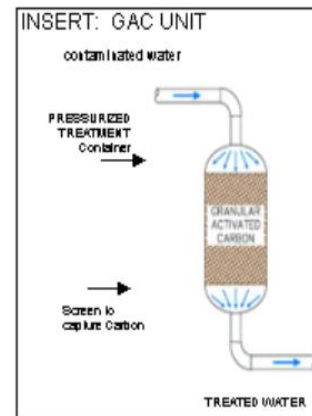
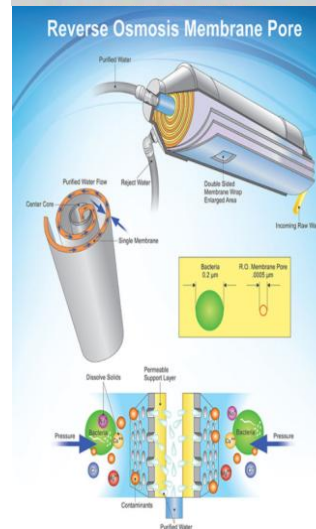
# Zone 7 Activities - Treatment

- ❖ Immediately implemented procedures to reduce PFOS to < RL at Mocho Wellfield by utilizing blending/RO;
- ❖ Investigating additional treatment options\*:

Treatment Type	Percentage Reduction	Effectiveness
Anion Exchange Resin (IX)	90 - 99%	High
High Pressure Membrane (Reverse Osmosis)	93 - 99%	High
Granular Activated Carbon (GAC)	89 - 99%	High

\*Disposal of concentrate waste could be problematic.

- ❖ Treatment Option Feasibility and Cost Estimate Study (March – July 2020) for treating PFAS to:
  - Anticipated regulatory standards/guidelines;
  - Lowest technically and economically feasible levels.



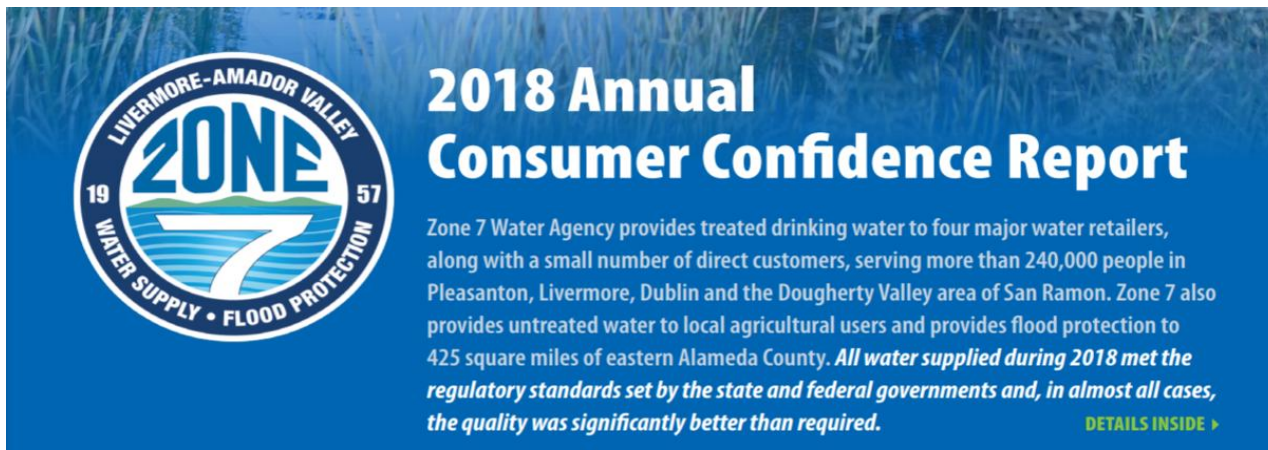
# Zone 7 Activities – Livermore Valley

## Groundwater Basin Investigation

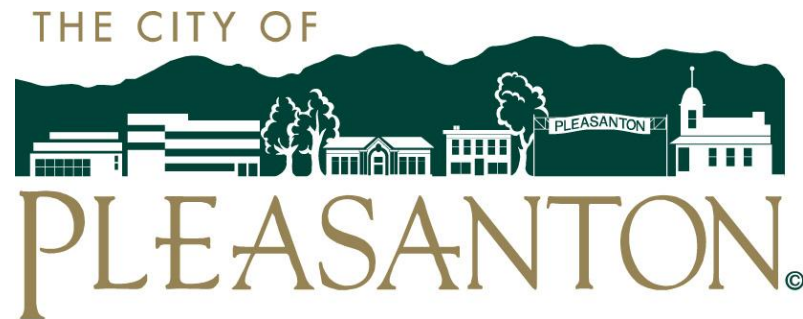
- ❖ Zone 7 has sampled 45 of its 200+ monitoring wells.
- ❖ Low-level PFAS seem to be widespread in the groundwater basin, occurring at various depths with no discernable pattern.
- ❖ Slightly higher concentrations of PFAS detected near the airport, extending west in the direction of general groundwater flow.
- ❖ No single source of contamination identified because PFAS are found in thousands of consumer products and there are no known local manufacturing sites.
- ❖ PFAS Distribution Assessment Report - **to be completed by Fall 2020**
  - To better understand the extent of PFAS plumes in groundwater basin;
  - To assist in identifying potential sources of contamination;
  - To identify data gaps and recommend future sampling and plume characterization efforts.

# Zone 7 Activities - Communications

- ❖ Immediately notified State Water Board, Zone 7 Board, retailers and direct customers;
- ❖ Created a webpage and fact sheet dedicated to PFAS information ([www.zone7water.com/pfas-information](http://www.zone7water.com/pfas-information));
- ❖ Included PFAS info in 2018 annual Consumer Confidence Report (CCR) and Feb 2020 eNewsletter;
- ❖ Responded to inquiries via emails and social media;
- ❖ Provided PFAS briefing to Zone 7 Board, retailers, State & Local Legislators;
- ❖ Preparing to include 2019 PFAS monitoring data in upcoming 2019 CCR;
- ❖ Plan to continue to providing updates as new info becomes available;



# Pleasanton PFAS Information





# Pleasanton Testing Results

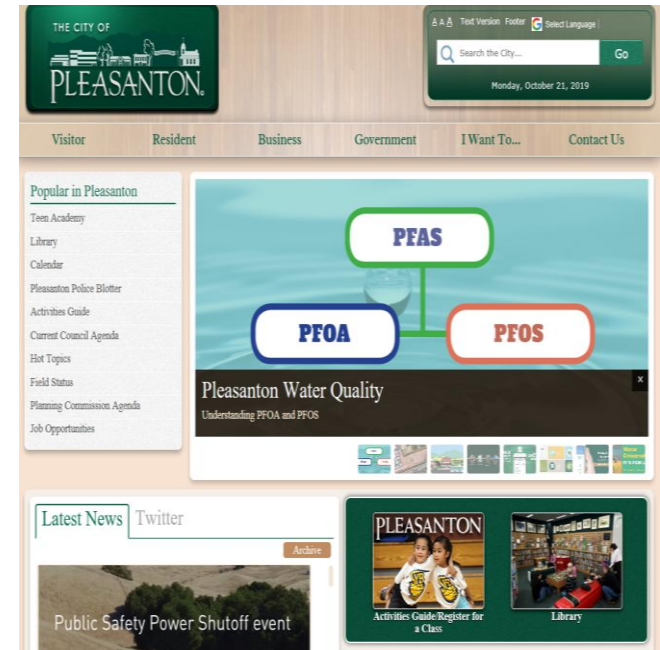
The City began testing of its groundwater wells as part of the DDW order issued on March 15, 2019. The table below provides a summary of results to date.

Well Location	Round 1 (ppt) April 19 - June 19	Round 2 (ppt) July 19 - Sept 19	Round 3 (ppt) Oct 19 - Dec 19	Round 4 (ppt) Jan 20 - March 20
PFOA				
Well 5	4.2	3.7	3.3	N/A
Well 6	3.8	3.3	3.6	3.9
Well 8	8.8	8.3	7.5	8.3
PFOS				
Well 5	31	22	21	N/A
Well 6	26	22	22	22
Well 8	115	100	69	110

\*N/A: Not available. Well 5 is currently out of service.

# Public Notification

1. City website posting that provides information updated test results on PFAS
2. Included PFAS information in Pleasanton Progress Newsletter (Fall 2019)
3. Mailed and emailed utility customers a brochure on PFAS
4. Will include City and Zone 7 test data in 2019 CCR



# Near-Term Actions - Operational

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1. Continue required testing
2. Keep Well 8 as last priority to operate
3. Monitor anticipated changes by DDW to Response Level
4. Coordinate with Zone 7 testing and operational strategies to confirm turnout water is below Response Levels
5. Support Zone 7 and DDW groundwater basin monitoring efforts for source identification

# Long-Term Actions

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## 1. Evaluate PFAS treatment at Wells 5, 6, and 8

- Treatment alternatives include: blending, GAC adsorption, IX resin, and reverse osmosis.
- Estimates include: facility upgrades, residual management strategies, staffing impacts/certifications, capital and O&M costs.
- Feasibility study
  - *Approved Contract with Carollo Engineers November 2019*
  - *Schedule ~ February 2020 (June 2020 w/ bench testing)*
- Design, Construction, Capital & O&M
  - *Cost ~ varies on treatment option and level of treatment*
  - *Schedule ~ 18+ months*

# Long-Term Actions

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## 2. Legislative Tracking

- MCL establishment
- Impacts to utilities
- Funding opportunities

## 3. Include PFAS in future regional water supply considerations

- 2020 Regional Demand - Conservation Study
- 2020 Urban Water Management Plan
- Estimate a range of groundwater pumping allotment (0-1140 MG)

# Key Takeaways



## **Zone 7 is delivering all water below the response level.**

The water delivered to our customers continues to meet or exceed all state and federal regulatory guidelines.

We are committed to supplying a safe and reliable water supply.



## **PFAS is a widespread problem, not just related to water.**



Water agencies are looking to regulators to set science based standards and guidelines that are actionable with the understanding that tighter guidelines may require funding assistance for infrastructure investment.



Further research and evaluation of the impact to human health and the environment of the PFAS class of chemicals is needed.



We will continue to closely monitor the quality of the community's drinking water supplies, utilizing proven technologies and best practices to ensure that any emerging PFAS issues are managed in a transparent and responsible manner.



# 2020 Looks to be a Dry Year

- ❖ The Tri-Valley is in good share
- ❖ Ample reserves for dry years
- ❖ Zone 7 Annual Sustainability Report models two consecutive dry years and shows demands can be met
- ❖ Mild conservation messaging

# PSPS Events

- ❖ Traditional start of wildfire season approaching
- ❖ Will trigger Public Safety Power Shutdown (PSPS) events
- ❖ Water agencies have plans to operate during PSPS events
- ❖ COVID-19 will complicate situations

# Questions?