



**WATER
AGENCY**

PFAS MANAGEMENT UPDATE

Special Board Meeting

August 31, 2022

AGENDA

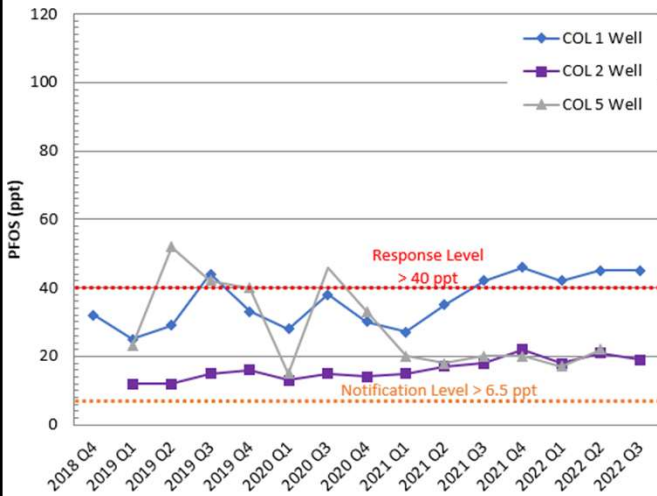
1. Review of Current PFAS Trends
2. PFAS Mobilization Modeling - *Desktop Contaminant Mobilization Study*
3. Recommended PFAS Management Strategies
4. Next Steps

Review of Current PFAS Trends

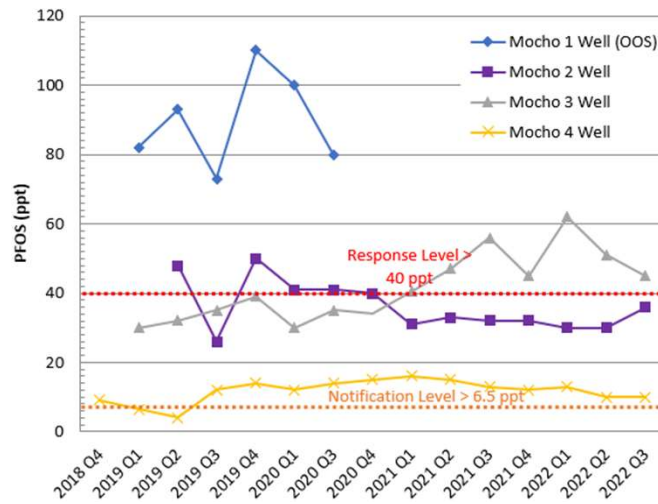


Current PFOS Trends

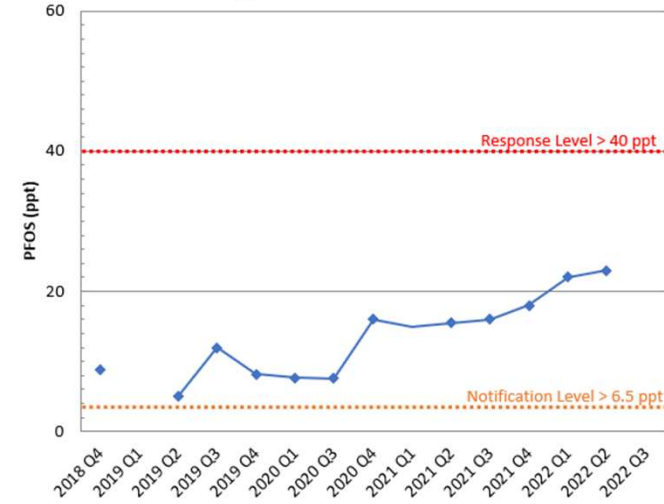
COL Wellfield PFOS Trends



Mocho Wellfield PFOS Trends

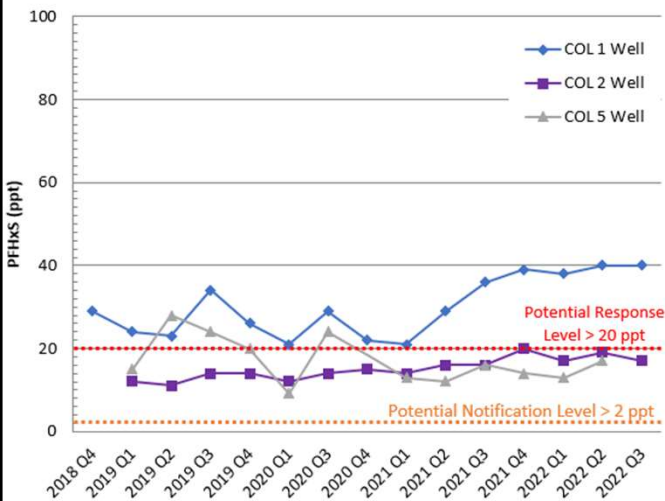


Stoneridge Wellfield PFOS Trends

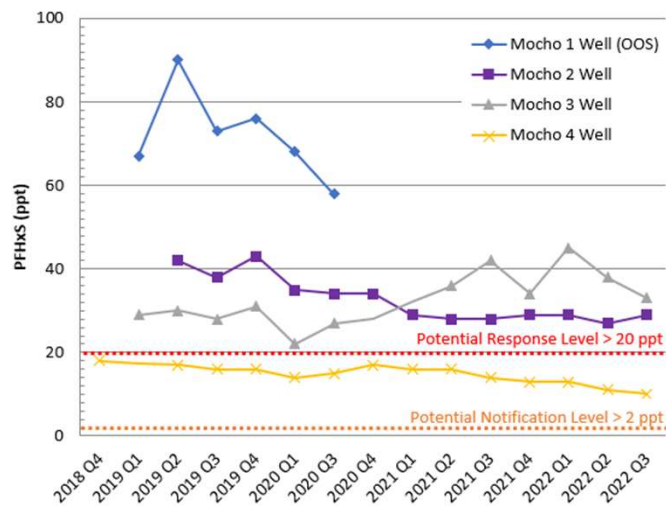


Current PFHxS Trends

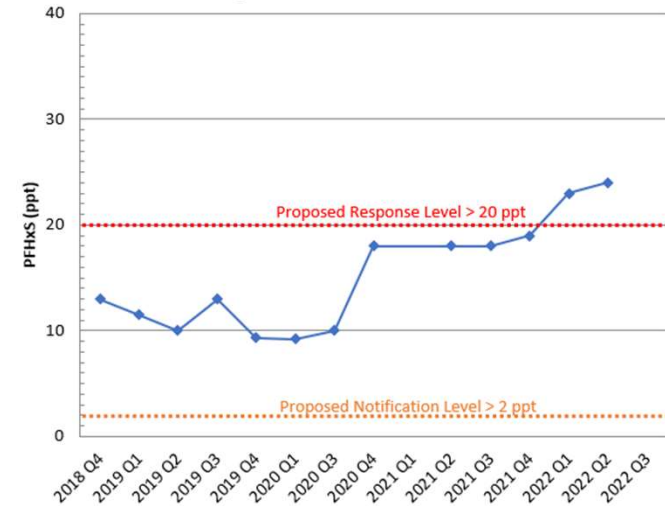
COL Wellfield PFHxS Trends

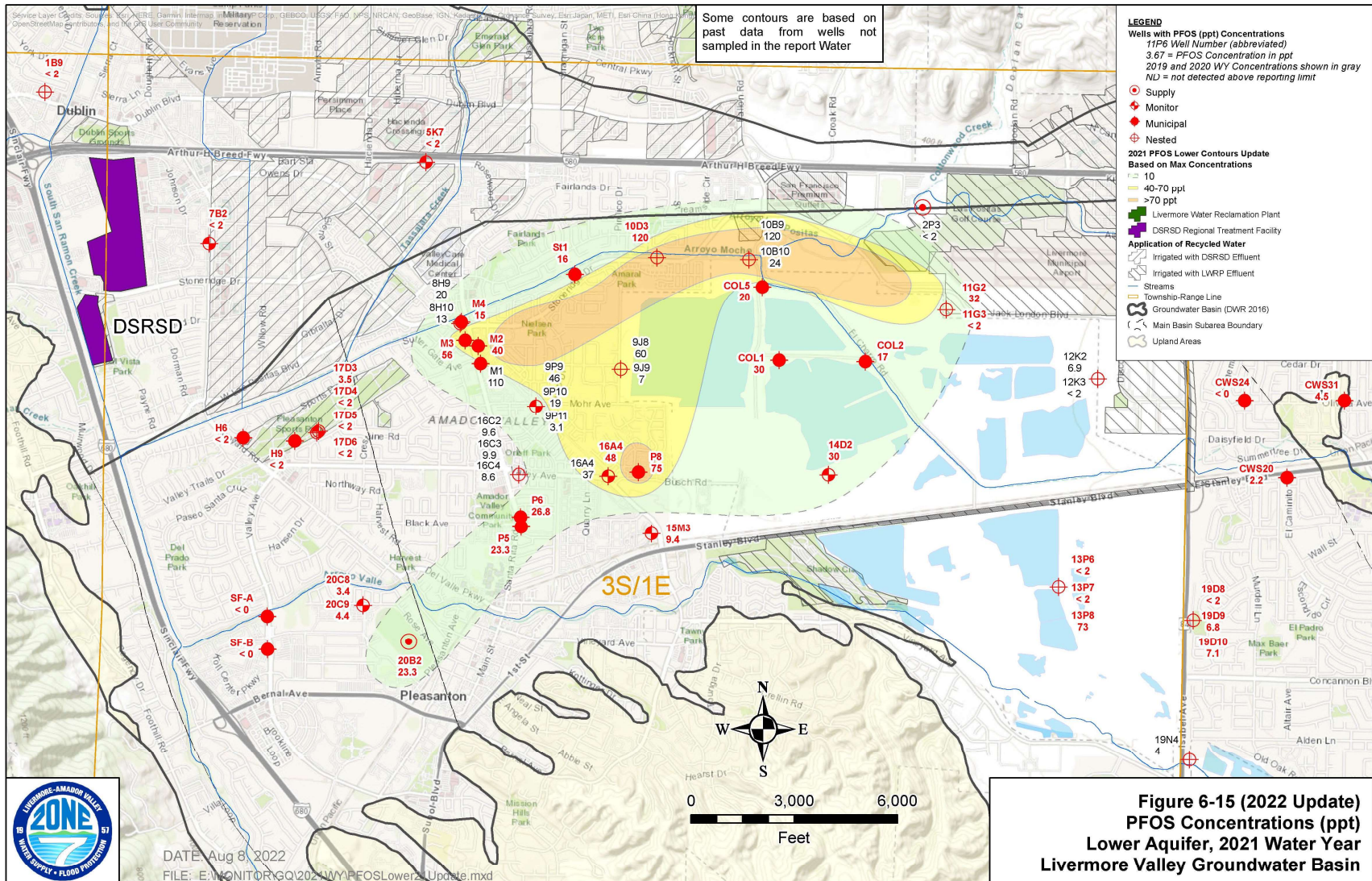


Mocho Wellfield PFHxS Trends



Stoneridge Wellfield PFHxS Trends





PFAS Mobilization Modeling

*Desktop Groundwater Contaminant
Mobilization Study*



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Key Questions for The Model



How do PFAS concentrations and plume footprints change and mobilize over time under each of five the scenarios?



Scenario 1: Baseline (Average pumping during normal conditions)

Scenario 2: Pumping with 5% SWP allocation

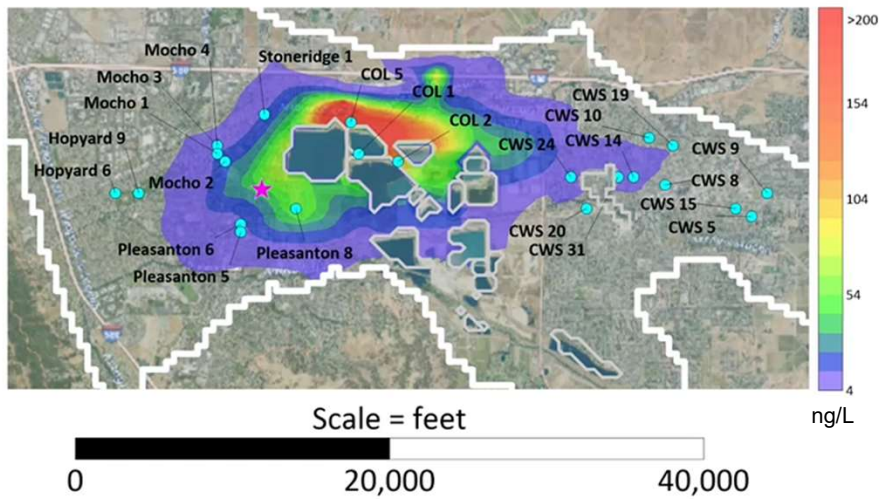
Scenario 3: Maximum pumping of wells with low PFAS

Scenario 4: Pump & Treat PFAS Wells + Reinjection @ Mocho 1

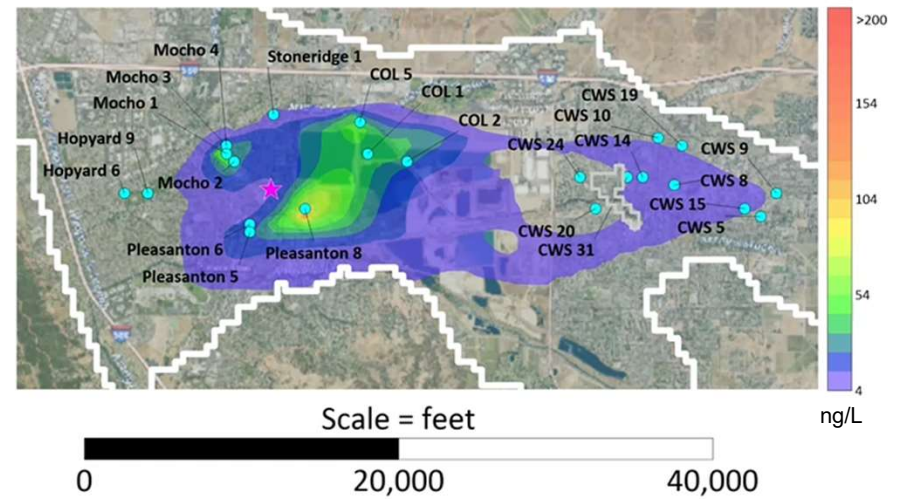
Scenario 5: Pumping at maximum designed capacities with treatment

Scenario 1 – Baseline Condition

Upper Aquifer

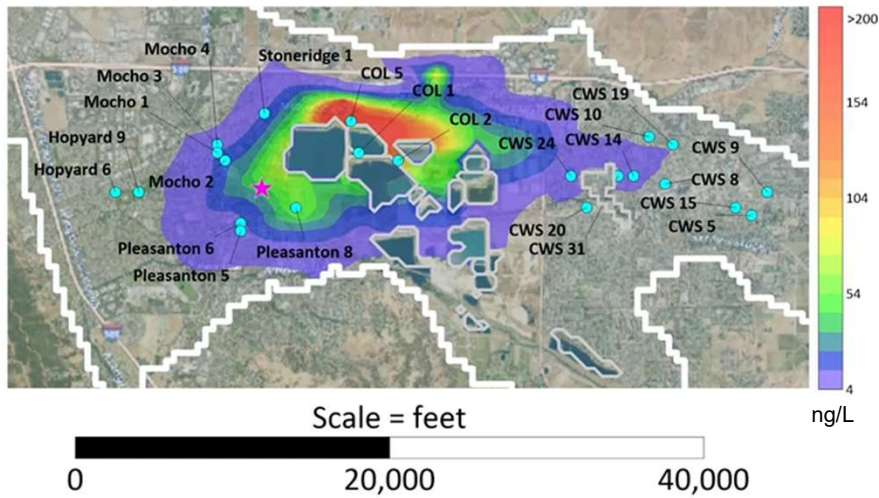


Lower Aquifer

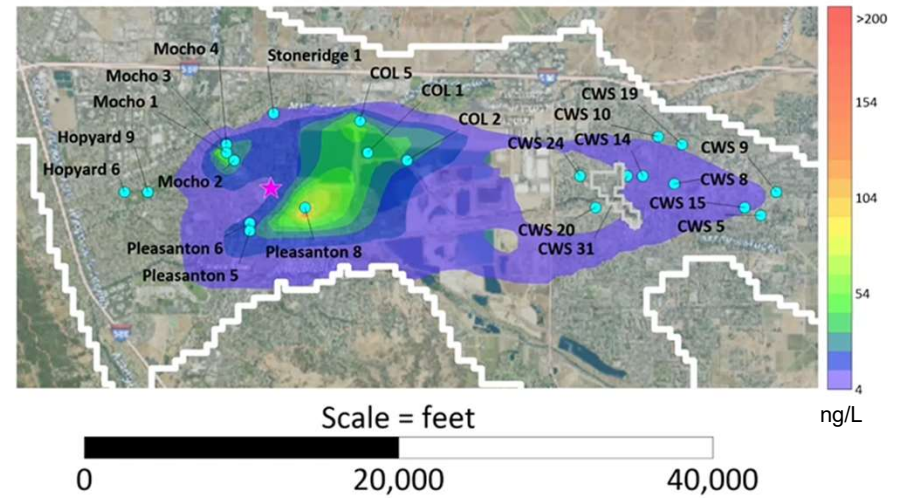


Scenario 4 - Pump & Treat PFAS Wells + Reinjection

Upper Aquifer

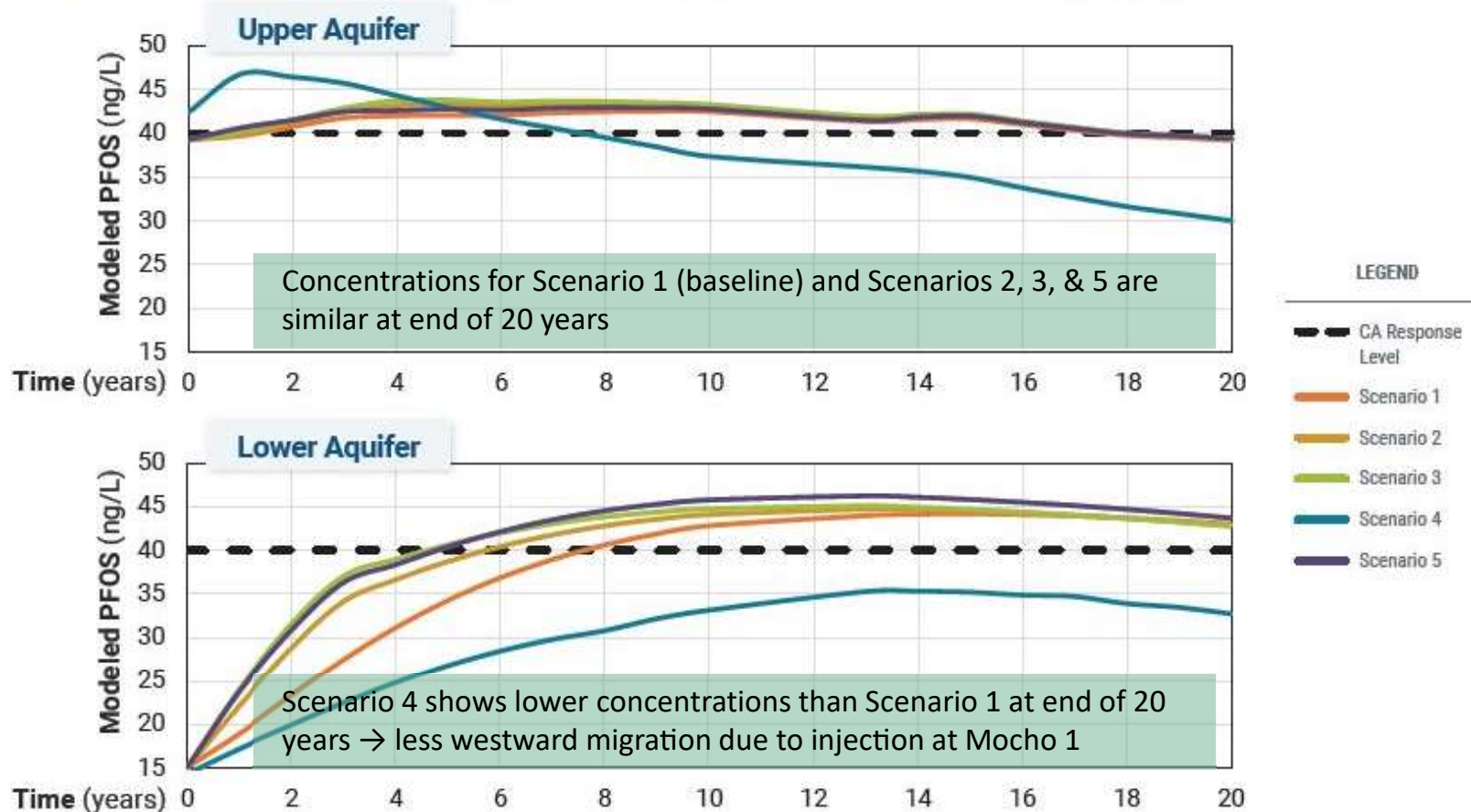


Lower Aquifer



Comparison at the Pink Star Reference Point

Graphs of Change of PFOS Concentration Over Time at Selected Location (★)



Note: Simulated concentrations in this presentation are for relative comparison only and should not be used to predict future values

Summary of Findings

- Increased pumping during droughts can mobilize the plume to the west
- Impacts of different pumping scenarios are similar at the end of 20 years
- Under all pumping scenarios, peak concentrations decrease over 20 years* but it will not be completely cleaned up
- Scenario 4 (re injection at Mocho 1) shows promising results at preventing westerly migration of plume
- Pumping & treating will help manage the plume

* Assumed no active point sources

Recommended PFAS Management Strategies



PFAS management supports Zone 7's Strategic Goals and Initiatives



RELIABLE WATER SUPPLY AND INFRASTRUCTURE
 PROVIDE CUSTOMERS WITH RELIABLE WATER SUPPLY AND INFRASTRUCTURE

Initiative 1
 Establish a diversified water supply plan

Initiative 2
 Evaluate and develop appropriate new water supply and reliability opportunities



SAFE WATER
 PROVIDE CUSTOMERS WITH SAFE WATER IN AN ENVIRONMENTALLY-SENSITIVE MANNER

Initiative 5
 Meet or surpass all drinking water health and safety requirements

Initiative 6
 Assess treatment requirements and strategy for PFAS and Cr6



GROUNDWATER MANAGEMENT
 WE MANAGE AND PROTECT THE GROUNDWATER BASIN AS THE STATE-DESIGNATED GROUNDWATER SUSTAINABILITY AGENCY

Initiative 7
 Manage the GSA and implement the groundwater management plan

Initiative 8
 Study and refine knowledge of the groundwater basins



Current PFAS Management Activities



- Completed PFAS Potential Source Investigation (Jacobs, 12/2020)
- Completed PFAS mobilization modeling study (Kennedy Jenks, 8/2022)
- Ongoing coordination and information sharing with retailers
- Standing meetings with the San Francisco Regional Water Quality Control Board's supply well protection team to investigate potential source(s)

Near-Term Strategy (Present – 2023)

1. MONITORING

- Monitoring PFAS
- Tracking regulations and MCL development

2. BLENDING

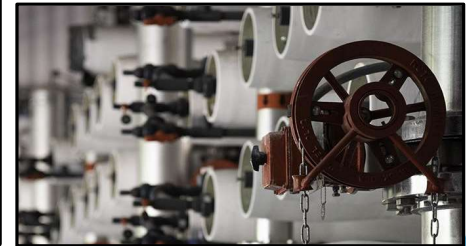
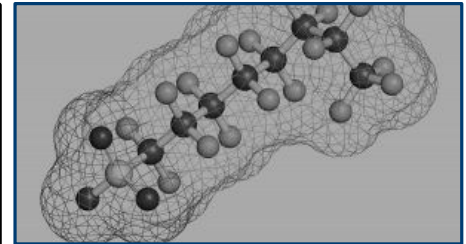
- Blending Chain of Lakes and Mocho well fields to meet the WQ standards
- Hopyard does not require blending or treatment currently
- Stoneridge will require PFAS treatment with the upcoming PFHxs Response Level (1/23)

3. SUPPLY DRIVEN OPERATION

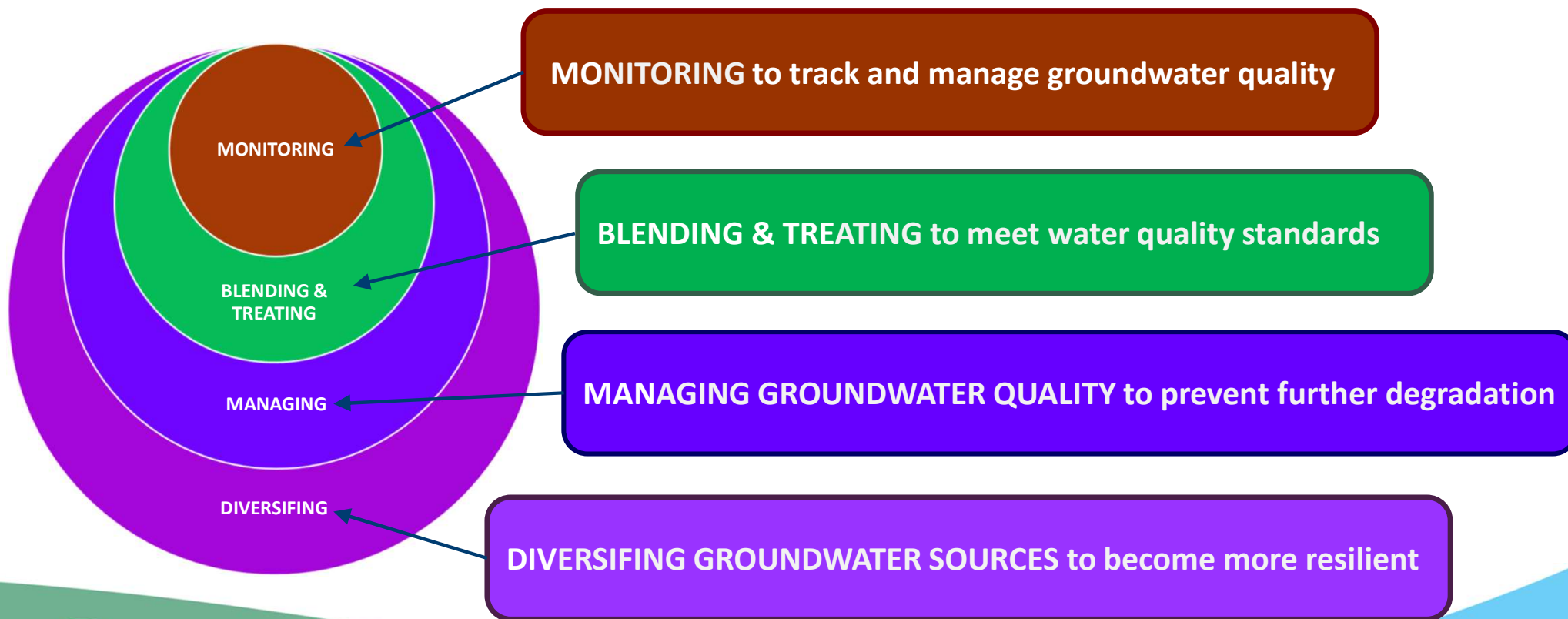
- Operating Mocho first followed by Hopyard, COL and Stoneridge

4. PLANNING

- Pre-planning for impacts of potential MCLs



Components of Long-term Strategy (Post 2023)



Strategy Components, Objectives, and Actions

considering fiscal responsibilities, environmental sensitivity, and proactivity

MONITORING: *The objective is to track and manage groundwater quality.*

Recommended Actions:

- Implement PFAS monitoring program to track the plumes and add sentinel wells
- Meet water quality sustainability criteria for SGMA compliance
- Exchange data with retailers and regulators to investigate the source(s)
- Make PFAS data and information available to the public for transparency

BLENDING & TREATING: *The objective is to meet current and future water quality standards.*

Recommended Actions:

- Meet primary water quality standards by blending and treating
- Optimize blending and treating to gain operational efficiency
- Develop and Operate treatment facilities - Chain-of-Lakes, Stoneridge, and existing MGDP

MANAGING GROUNDWATER QUALITY: *The objective is to prevent further degradation and mobilization.*

Recommended Actions:

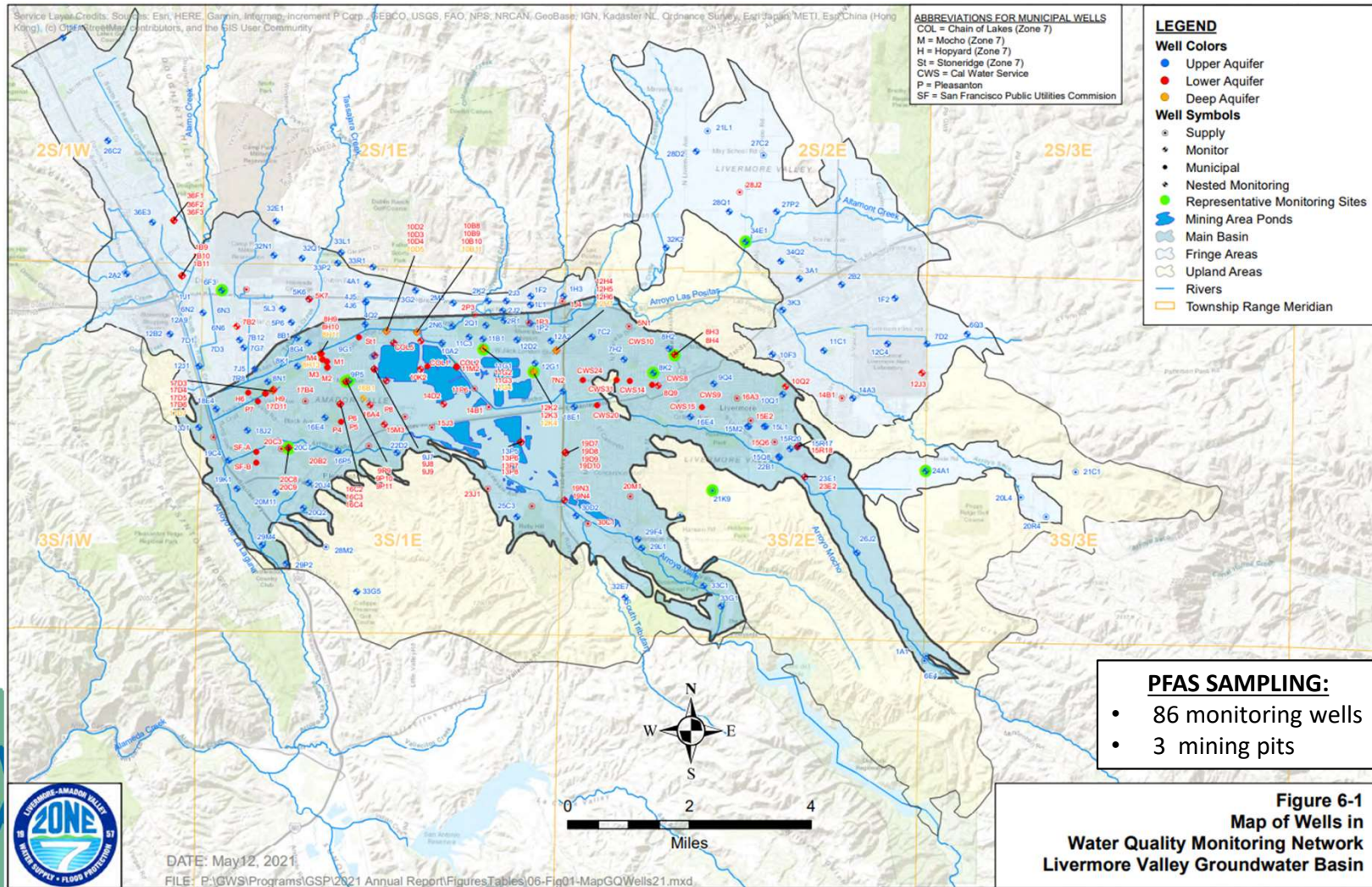
- To the extent possible, prevent the PFAS plumes migrating further west
- Increase the water quality protection by more stringent well Permitting
- When completed, operate COL PFAS Treatment Facility to pump and treat the plumes
- Analyze feasibility of injecting Mocho 1 to dilute and/or impede the plume

DIVERSIFYING GROUNDWATER SOURCES: *The objective is to become more resilient to droughts and emergencies.*

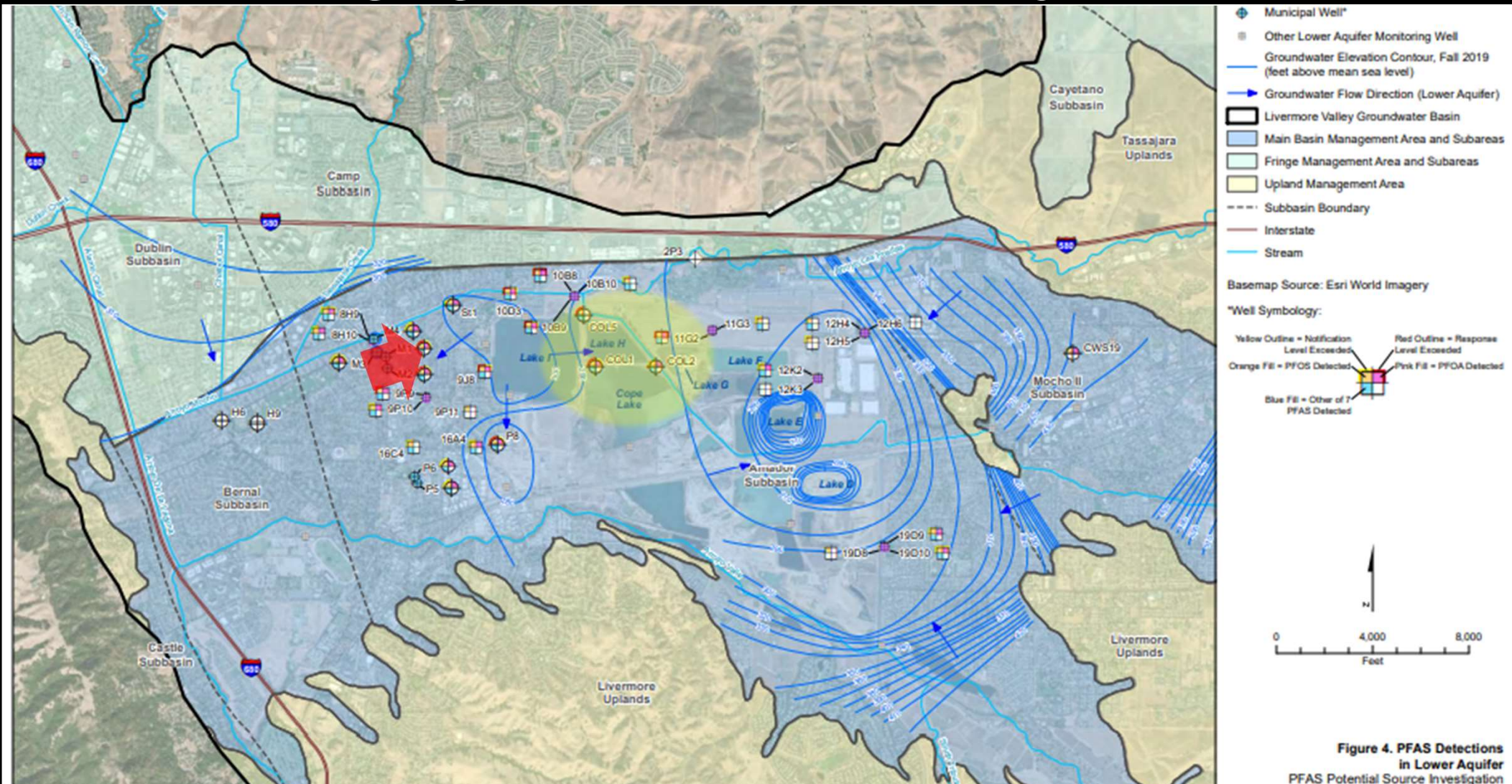
Recommended Actions:

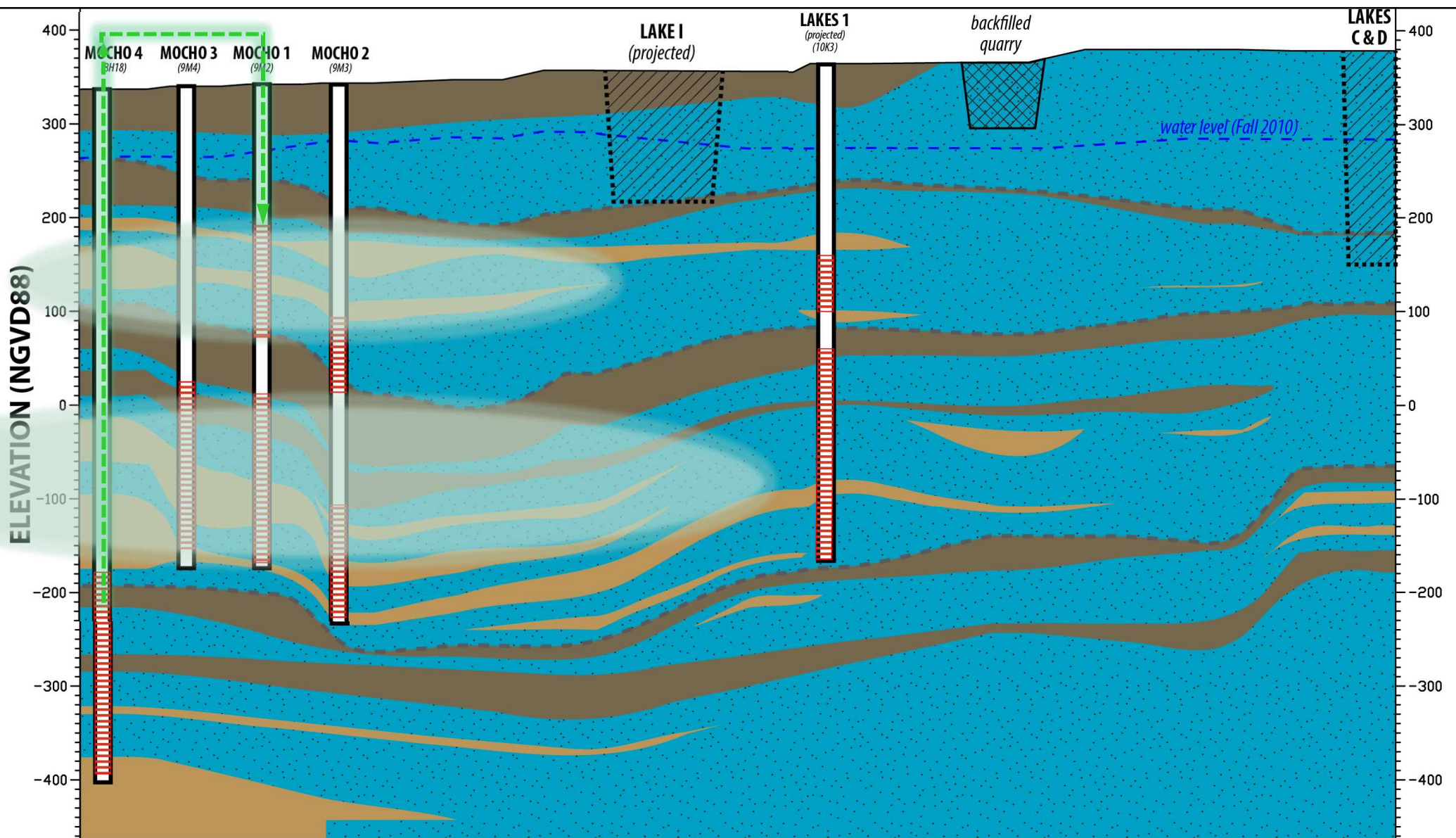
- Update the 2003 well master plan (FY24)
- Add new wells to diversify the GW sources and remain sustainable
- Meet the water supply reliability policy (Resolution No. 13-4230)

WATER QUALITY MONITORING



Managing Groundwater Quality & Plume





Dougherty
pressure
zone

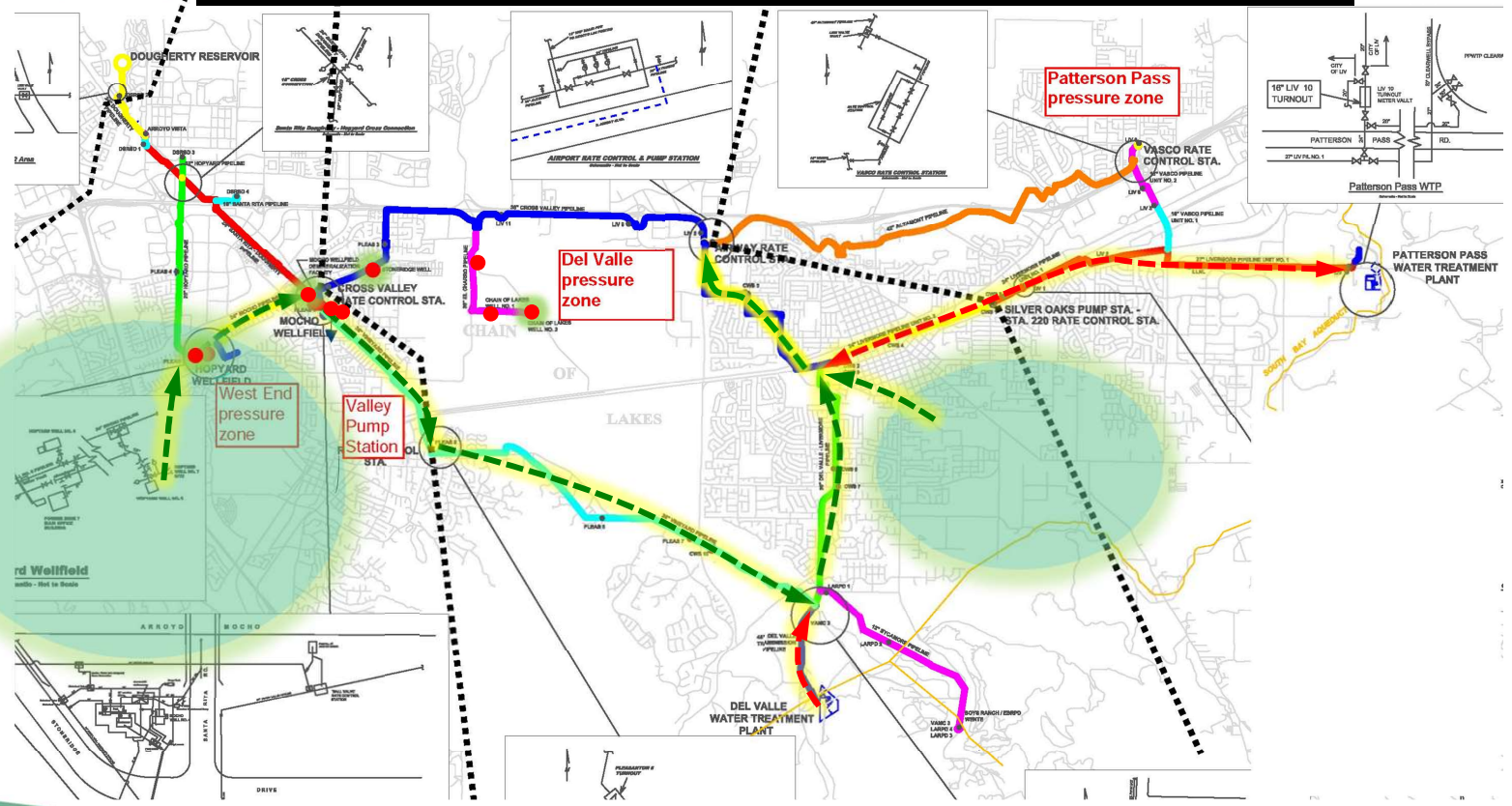
DIVERSIFY GW SOURCES

Patterson Pass
pressure zone

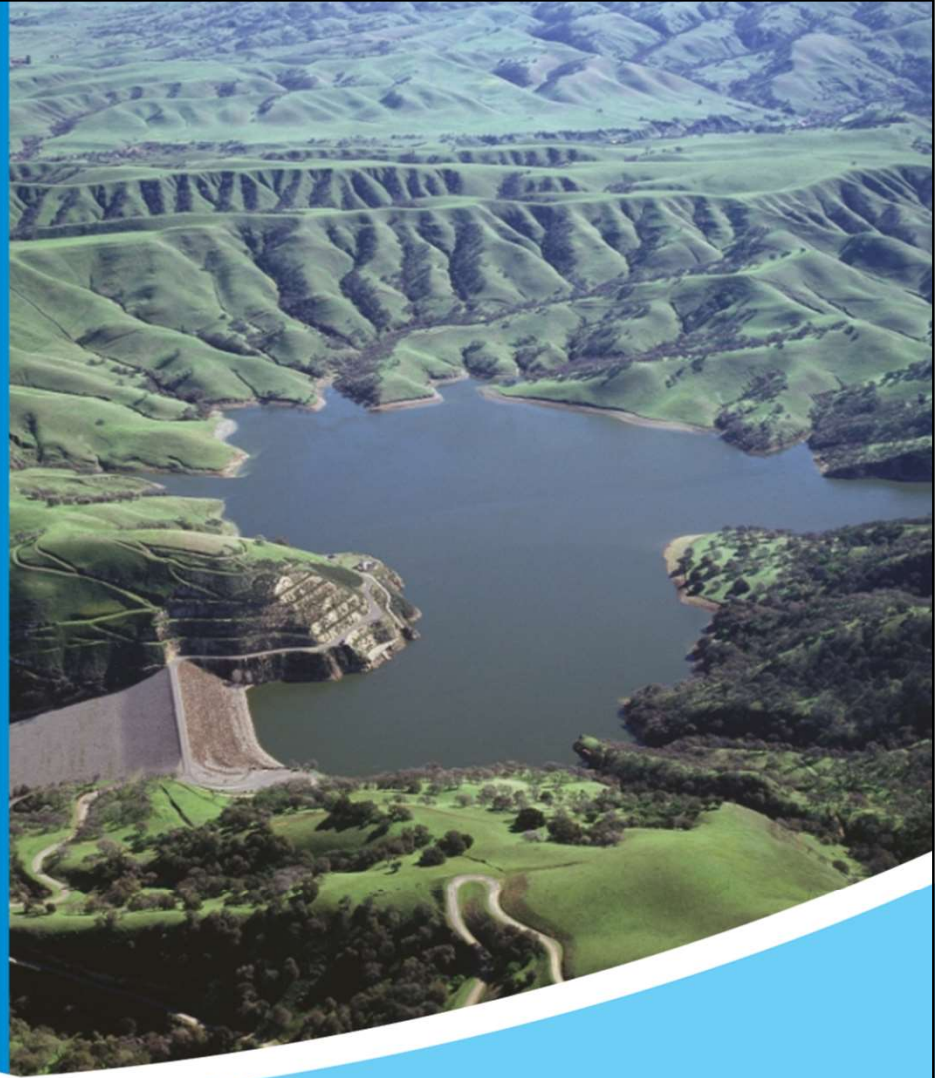
Del Valle
pressure zone

West End
pressure zone

Valley
Pump
Station



Next Steps



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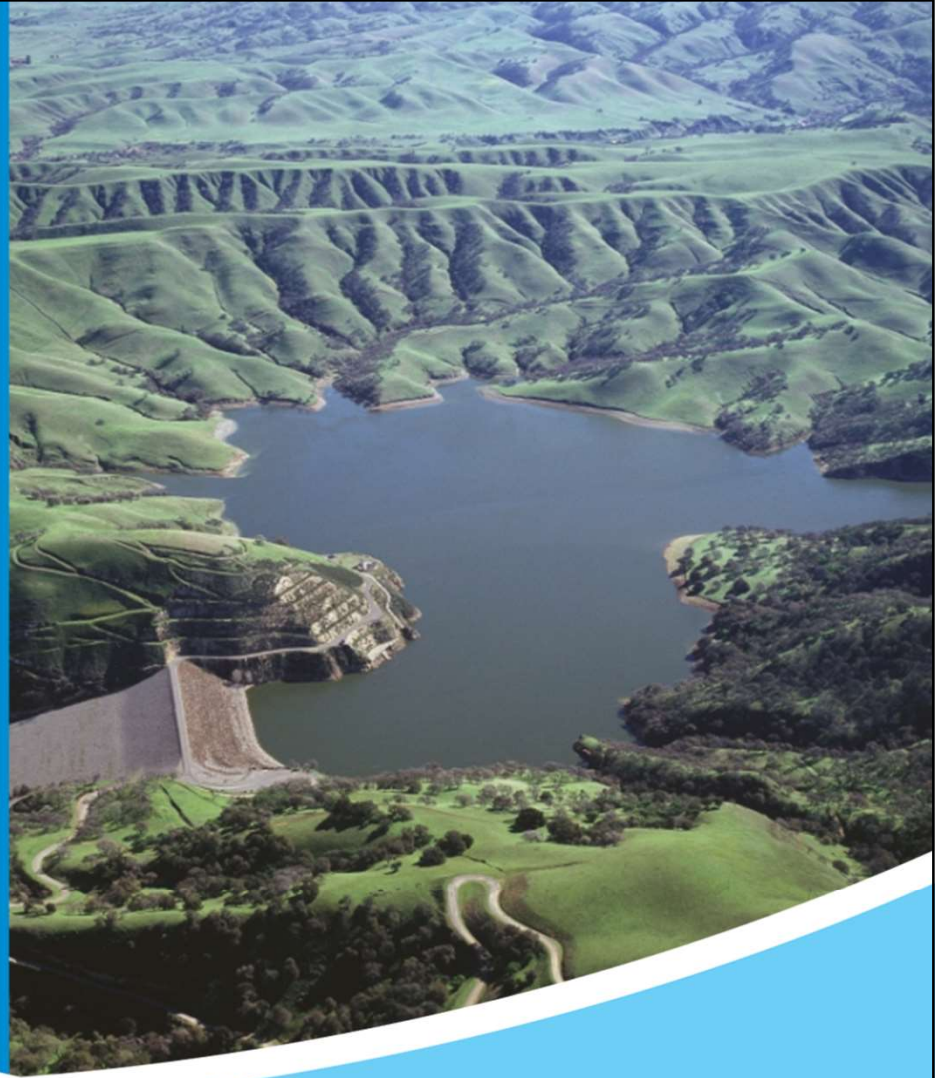
Recommended Next Steps

1. Continue monitoring
2. Continue coordinating with the San Francisco Regional Water Quality Control Board to identify the source(s)
3. Continue with blending operation until the MCL is established
4. Fill data gaps (FY23) and apply adaptive the PFAS management strategies as necessary
5. Upgrade the GW model (FY23)
6. Update the Well Masterplan (FY24) and develop well projects
7. Pilot-test injection via Mocho 1 (TBD in FY 25)*
8. Construct COL PFAS treatment facility and plan for an additional facility at the Stoneridge site
9. Pump and treat the plume when the COL system becomes operational
10. Install new wells to diversify the supply sources as per the updated well master plan



* Injection operation will take place only if Mocho well field is NOT continually operating. For injection operation, Mocho 4 will be operated intermittently

Q&A



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