The Water Authority's Plan for Supplemental Fluoride

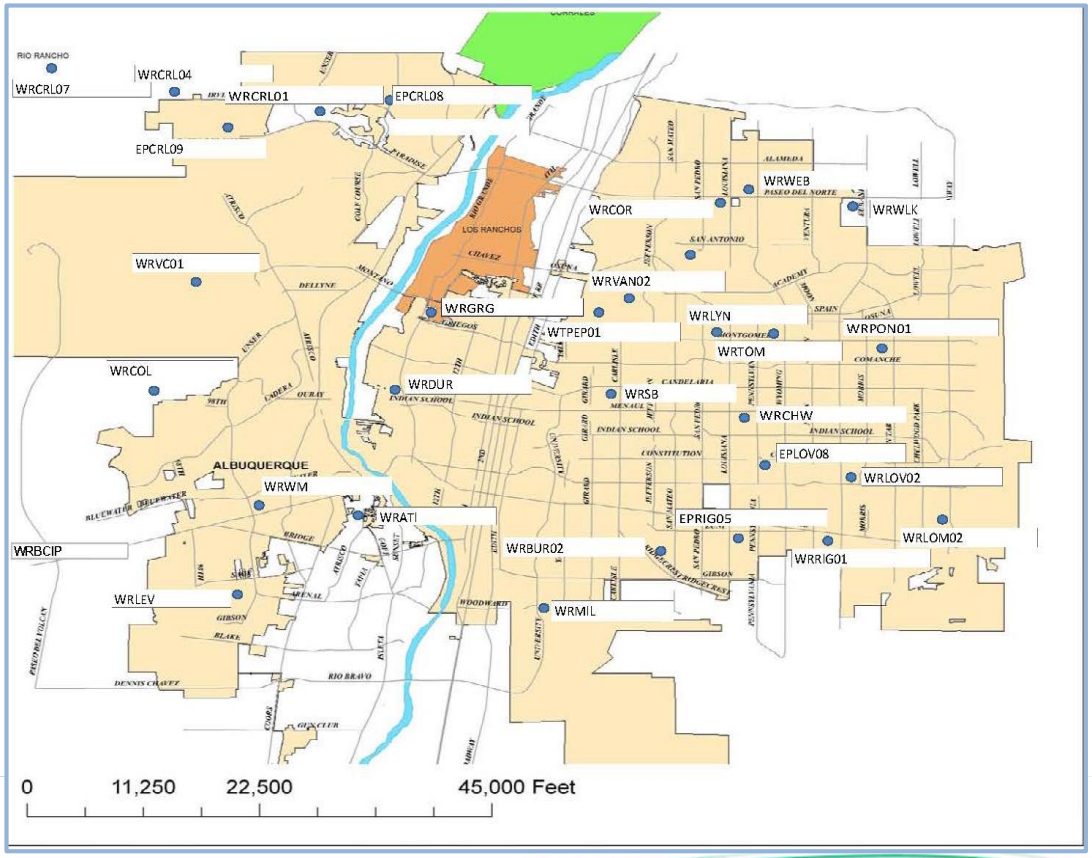
- Review directive from Board Resolution R-14-6
- Provide data for fluoride background levels in the Water Authority's water sources
- Project expected fluoride levels to customers when supplemental fluoride is resumed
- Review expected capital & annual OM&R costs
- Confirm program scheduling

The Water Authority's Plan for Supplemental Fluoride

- Board Resolution R-14-6: Present the HHS / CDC final optimal recommended fluoride level
- US Public Health Service / CDC Guidelines:
  - 1962 guideline: 0.7 ≤ Fluoride conc. ≤ 1.2 mg/L
  - 2015 final optimal level: Fluoride conc. = 0.7 mg/L
    - Accounts for more readily available fluoride in other sources including toothpaste & dental care compared to 50 years ago

Background Levels in Our Water

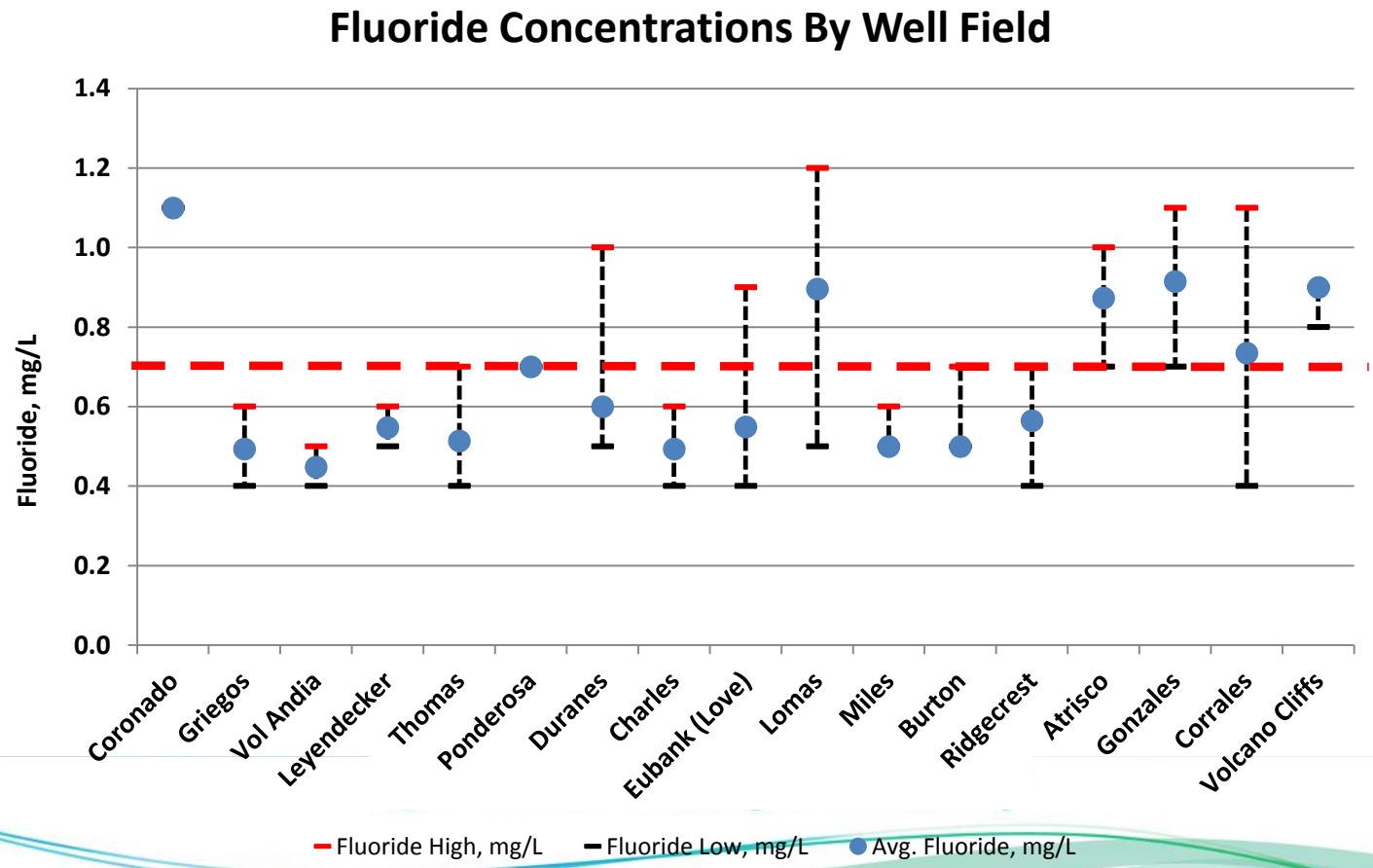
- Fluoride levels in groundwater: Based on sampling at 100 wells over the past 27 years



Albuquerque Bernalillo County Water Utility Authority

Background Levels - Well Water

- Varies depending on how long & how often pumped



Albuquerque Bernalillo County Water Utility Authority

Background Levels - Surface Water

- Varies slightly depending on timing of snowmelt (from which Rio Grande tributary?) and impact of summer storms
- USGS data for quarterly samples taken in 2012-2015 from Rio Grande shows:
  - Range of 0.24 – 0.44 mg/L Fluoride
  - Average = **0.35** mg/L Fluoride

Fluoride in Water to Customers-NOW

- Surface & groundwater supplies are blended
- Blend ratio depends on seasonal demand & availability of surface water
- During droughts: 100% groundwater when SJCWTP offline
- Quarterly sampling in distribution system (33 sites) shows:

Fluoride level	100% GW	Winter blend of SW / GW	Summer blend of SW / GW
Average value	0.5	0.5	0.4
Data range	0.30 – 0.83	0.34 - 0.77	0.26 - 0.89

Albuquerque Bernalillo County Water Utility Authority

The Water Authority's Plan for Supplemental Fluoride

- Addition would only take place at SJCWTP
  - Secure facility, planned and designed for safe handling of bulk chemicals
- Would add liquid fluorosilicic acid
  - NSF 60-approved chemical of choice for most systems
  - Fluoride content varies from 26-35% (We test it)
  - With raw water F = **0.35** mg/L & target of 0.7 mg/L, actual F concentration in treatment plant product following acid addition will be **0.65** – **0.75** mg/L

The Water Authority's Plan for Supplemental Fluoride

- With surface water available, fluoride levels to customers would average **0.7** mg/L
- When SJCWTP is offline, fluoride levels to customers would average **0.5** mg/L
- In all cases, expected fluoride levels to customers are ***well below*** EPA Secondary MCL of 2.0 mg/L

Costs to the Water Authority for Supplemental Fluoride Addition

- 1-time capital costs for new facilities at SJCWTP estimated at $260,000
- Annual OM&R costs of $270,000/year include:
  - Purchase of fluorosilicic acid
  - Replacing acid storage & feed system wearable parts
  - Costs for acid purity testing, water sample collection & testing, related SDWA program compliance costs
- Program begins on 7/1/15 if approved in FY17 budget

Summary / Conclusions

- 0.7 mg/L F is the final, optimal recommended dose published by USPHS-CDC
- Background levels of *naturally occurring fluoride* in our water now typically provide **0.5** mg/L
- Proposed fluoride addition program starts 7/1/16
  - Subject to approval of funding by Board for FY17
  - Would add liquid fluorosilicic acid only at SJCWTP

Summary / Conclusions contd.

- Expected average fluoride concentrations in water to customers: **0.7** mg/L
- Will continue monitoring fluoride levels throughout distribution system as now done
- 1-time capital costs for fluoride program: $260,000
- Annual costs for fluoride program: $270,000/year