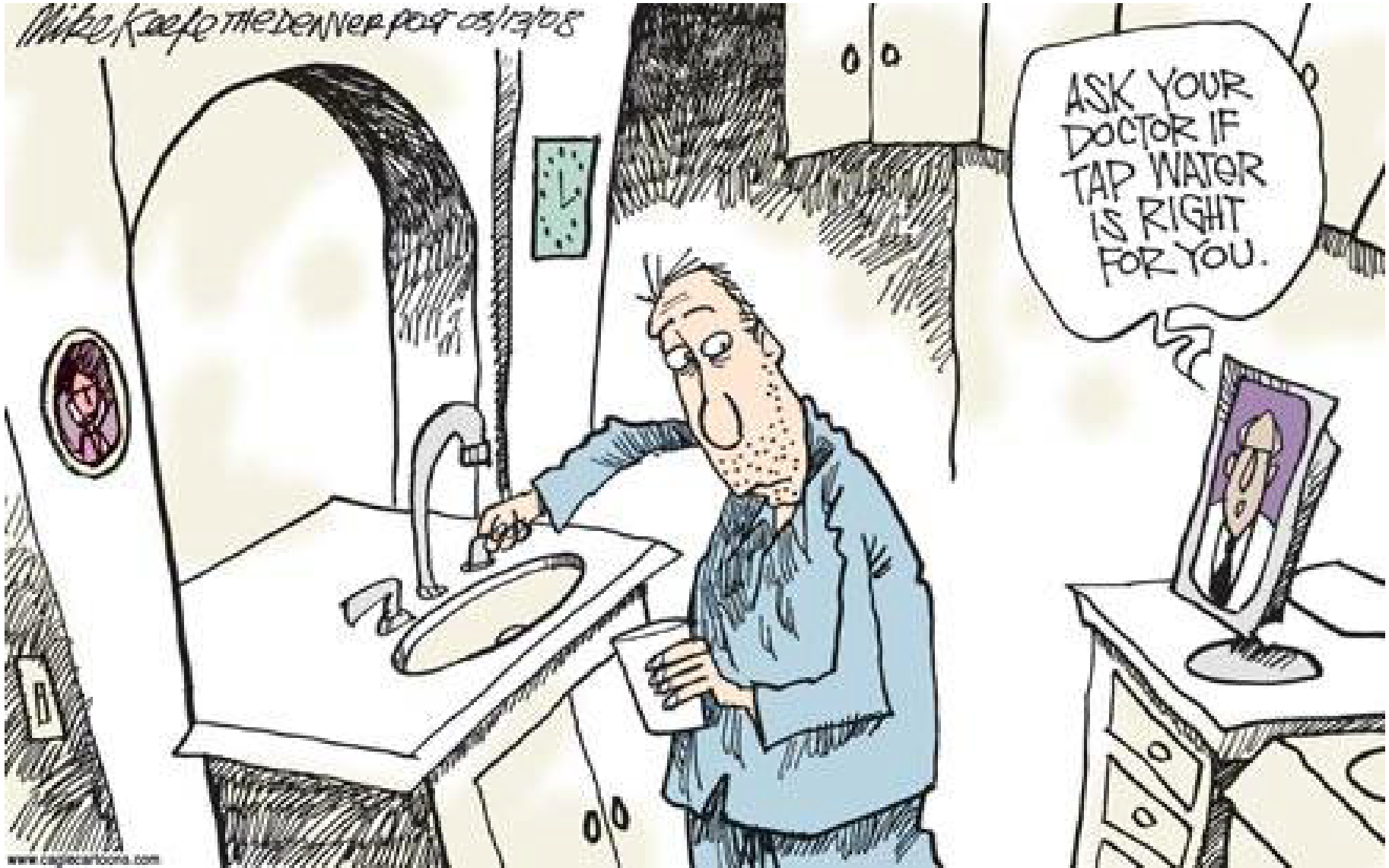
PWS MONITORING BASICS

EUGENE PIZZINI

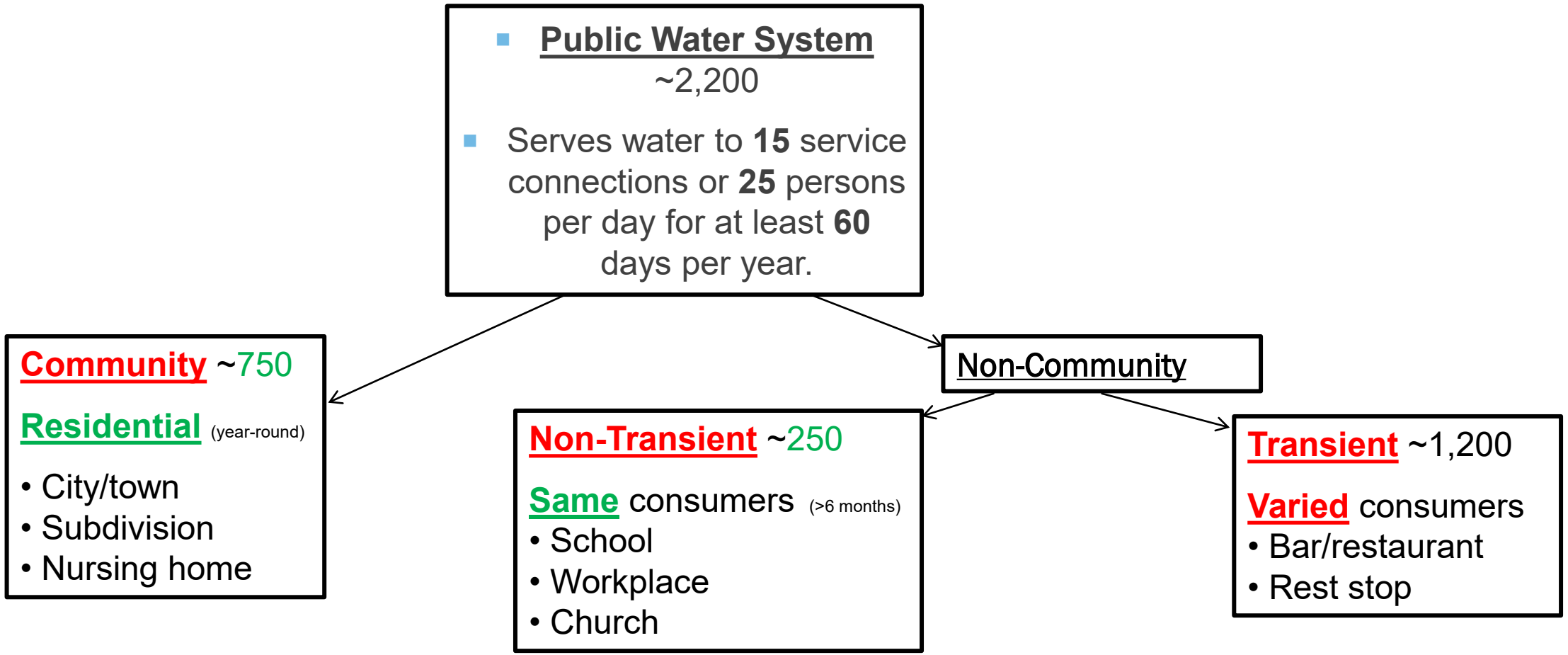
MONITORING AND REPORTING SECTION SUPERVISOR


Mike Keefe The Denver Post 05/13/08
ASK YOUR DOCTOR IF TAP WATER IS RIGHT FOR YOU.

MONITORING BASED ON RISK

- System Type
- Contaminant Classification
- Source Type
- Sampling Location
- Sampling Frequency
- Waivers

SYSTEM TYPE


Public Water System
~2,200
Serves water to 15 service connections or 25 persons per day for at least 60 days per year.
Community ~750
Residential (year-round)
• City/town
• Subdivision
• Nursing home
Non-Community
Non-Transient ~250
Same consumers (>6 months)
• School
• Workplace
• Church
Transient ~1,200
Varied consumers
• Bar/restaurant
• Rest stop

CONTAMINANT CLASSIFICATION

Acute vs. Chronic

Acute - Single exposure may cause death or harm

- Total coliform (microbial)
- *Nitrate/Nitrite*

Chronic – Long-term exposure may cause death or harm (carcinogens)

- SOC (Synthetic or Semi volatile Organic Chemical)
  - Herbicides and pesticides
- VOC (Volatile Organic Chemicals)
  - Hydrocarbons
  - Solvents
- IOC (Inorganic Contaminants)
  - Metals
- Disinfection By-Products
- Lead and Copper
- Radiological's

SOURCE TYPE

- Groundwater
  - Wells, most of our sources
    - Monitor and treat as necessary
- Surface Water
  - 70+ systems serving ~45% of our population
    - Treat and then monitor to ensure treatment was effective

SAMPLING LOCATION

- Source Sampling
  - IOC
  - VOC
  - SOC
  - Rads
- Distribution sampling
  - Total Coliform
  - Lead and Copper
  - Disinfection By-Products

SAMPLING FREQUENCY

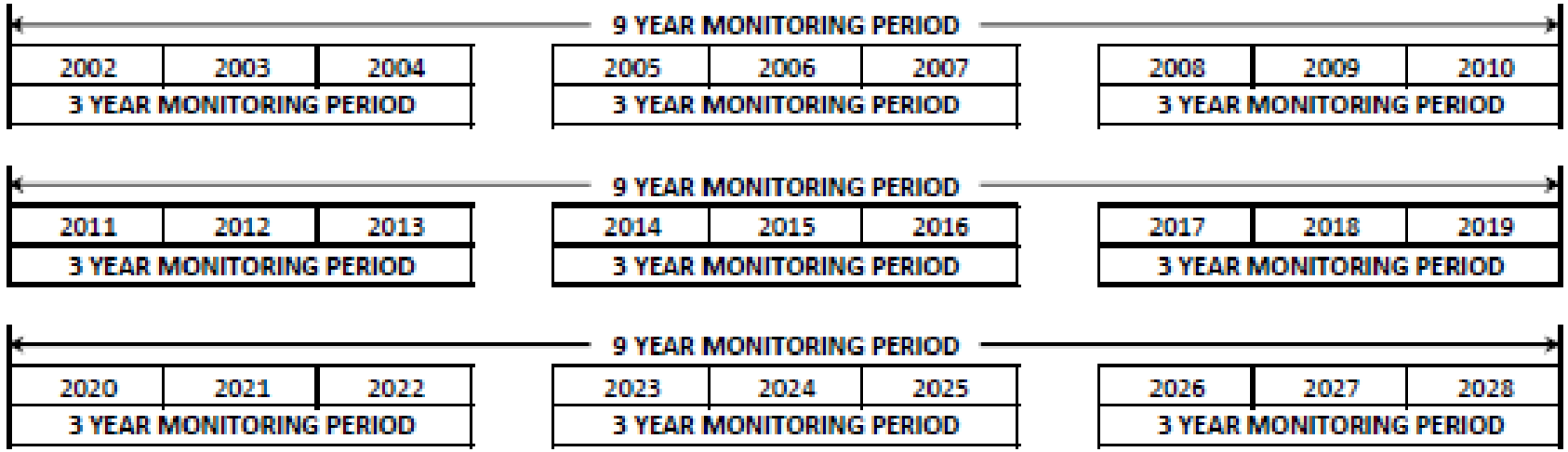
The Acute contaminants are monitored routinely

- TCR is monthly with some transient systems allowed quarterly
- Nitrate is annual
- Nitrite is 1/3 years
- Or a system may just due an annual N+N to meet both requirements

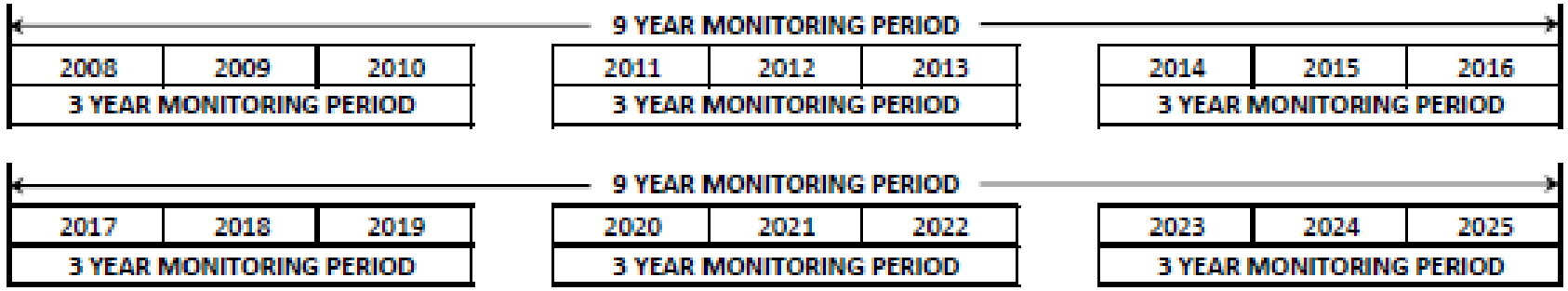
The Chems/Rads are generally monitored under the Standardized Monitoring Framework

- Sample at each source or common header
- All active sources
- Specific periods of time

STANDARD MONITORING TIMEFRAME FOR INORGANIC/ORGANIC SAMPLES (IOC, SOC, VOC, ASBESTOS, ARSENIC)



STANDARD MONITORING TIMEFRAME FOR RADIOLOGICAL SAMPLES (COMBINED RADIUM, GROSS ALPHA, URANIUM)



* Monitoring periods begin on January 1st of the first year in the period and run through December 31st of the last year in the period.
Sample may be collected any time within the 3 year monitoring period.
Radionuclides rule came into effect in 2008, and monitoring frequency is determined by contaminant concentration (1 routine sample every 3, 6, or 9 years).
Standard monitoring frequency for IOC, VOC, SOC, and Arsenic after initial monitoring is 1 routine sample every 3 years.
Asbestos is 1 routine sample every 9 years, but must be sampled in the first 3 years of each 9 year period.

WAIVERS

- Statewide Waivers
  - 7 analytes (+Dioxin)
    - One entry point per system
    - Due 12/2022
      - Some labs due reduced costs for sampling in 1st quarter
- System Specific Waivers
  - Analyte Specific
    - IOC, SOC, VOC
    - Asbestos
      - Sample if AC pipe
      - Certify no AC pipe