

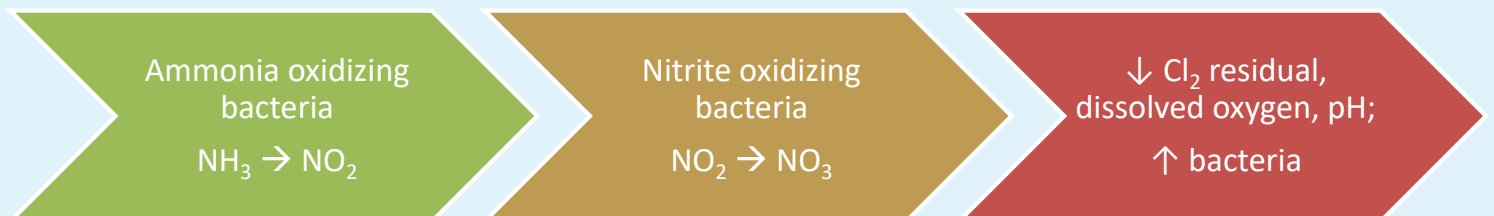
FREE CHLORINE CONVERSION

January 24, 2024



Chloramines and Nitrification

- Since 1999, all sources are disinfected with chloramines
- Persistent seasonal water quality issues observed



Nitrification Process

Source Waters

Clear Groundwater Wells

- Primary source
- Wells 1B, 3B, 5, 7, 9B, 12, 14
- Minimal DBPs with free chlorine

MWRF

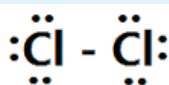
- Deep, amber-colored groundwater
- DBP formation with free chlorine (prior testing)

Imported Water

- Emergency supply from MWD via MWDOC
- DBP formation with free chlorine (prior testing)

Nitrification Control

- 2014 Temporary Conversion to Free Chlorine
- 2016 Nitrification Study (Carollo Engineers, AQUALity Eng.)



Free Chlorine

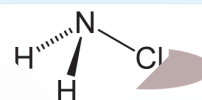
Powerful oxidant

Can form DBPs (organics)

Can 'burn' nitrifying bacteria

Limits use of MWRF or MWD water

Less chemical use



Chloramines

Weaker oxidant

Minimal DBP formation (all sources)

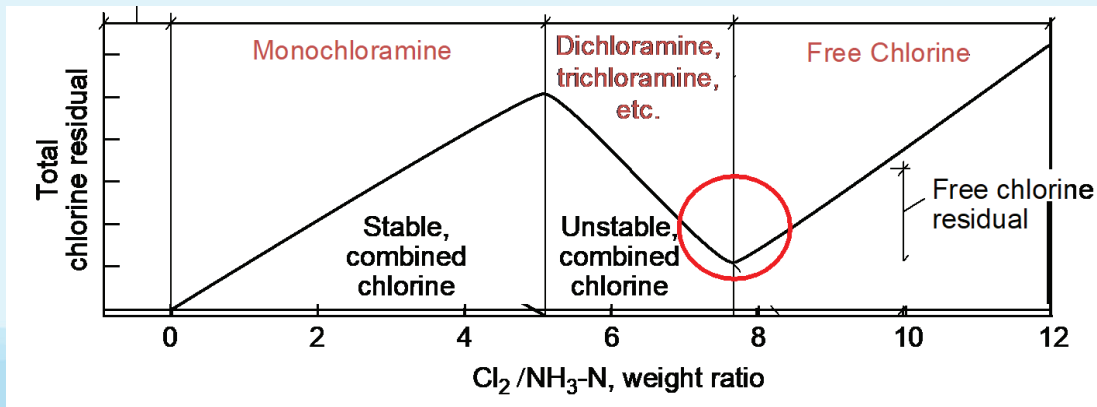
Nitrification issues are common

Used by MWD

More chemical use (ammonia)

Nitrification Control

- 2018 Free Chlorine Conversion Study (Trussell)
 - Assessed free chlorine (wells) with chloramines (MWRf/MWD)
 - Potential chlorine loss in distribution system pockets
 - Testing needed to confirm strategy



5 | January 24, 2024



Source Waters

Clear
Groundwater
Wells

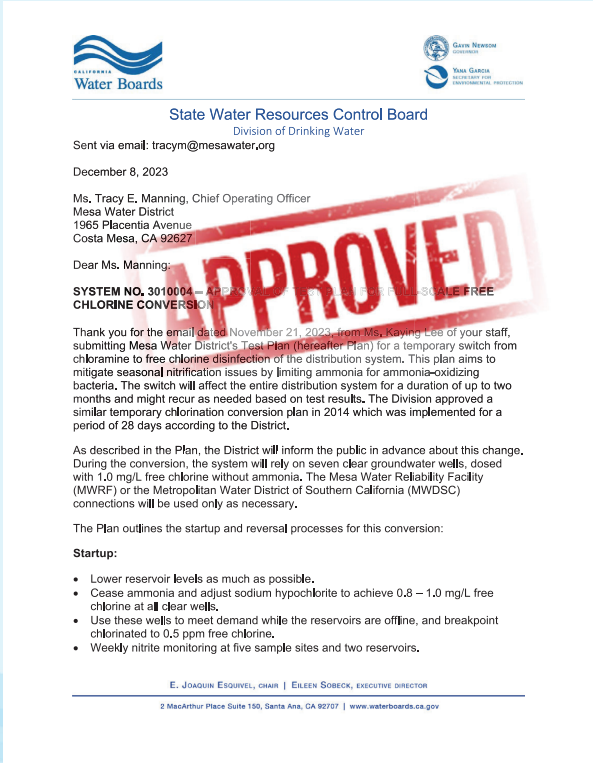
- Primary source
- Wells 1B, 3B, 5, 7, 9B, **12 (new), 14 (new)**
- Minimal DBPs with free chlorine

New wells offer valuable supply to facilitate alternative nitrification control strategy:

Periodic temporary free chlorine conversion

Free Chlorine Conversion

- Full-scale Free Chlorine Disinfection:
 - Testing ≤ 2 months
 - Clear groundwater wells operating
- Testing and Monitoring:
 - Existing plan
 - Select additional monitoring



Outreach

Required

- Newspaper Ad
- Social Media
- Website

Optional

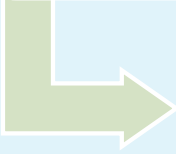
- Mailed Postcard
- Mesa Water Notify Alert



Next Steps

Early February
2024

- Public notification efforts
- Quarterly compliance sampling



Mid-February
to Mid-March
2024 (TBD)

- Draw down reservoirs pre-conversion
- Operate clear groundwater wells with free chlorine
- Complete monitoring per test plan



Post-Testing

- Compile results
- Prepare report for DDW

THANK YOU!

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