

Presentation and Discussion Item 7

FREE CHLORINE CONVERSION

January 24, 2024

Chloramines and Nitrification

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





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) 	
3 January 24, 2024		MesaWater DISTRICT®

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)



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 GAYN NE YANA GARCIA State Water Resources Control Board • Full-scale Free Chlorine Disinfection: Sent via email: tracym@mesawater.org December 8, 2023 - Testing ≤ 2 months Ms. Tracy E. Manning, Chief Operating Office Mesa Water District 1965 Placentia Avenue Costa Mesa, CA 92627 - Clear groundwater wells operating Dear Ms. Manning: SYSTEM NO. 3010004 CHLORINE CONVERS Testing and Monitoring: Thank you for the email Infank you for the Switch better black to a set the set of the set of the set of your faith and the set of the - Existing plan - Select additional monitoring As described in the Plan, the District will inform the public in advance about this change, During the conversion, the system will rely on seven clear groundwater wells, dosed with 1.0 mg/L free chlorine without ammonia. The Mesa Water Reliability Facility (WWRF) or the Metropoltan Water District of Southern California (MWDSC) connections will be used only as necessary. The Plan outlines the startup and reversal processes for this conversion: Startup · Lower reservoir levels as much as possible. Cease ammonia and adjust sodium hypochlorite to achieve 0.8 – 1.0 mg/L free chlorine at all clear wells. chronne at al clear wells. Use these wells to meet demand while the reservoirs are offline, and breakpoint chlorinated to 0.5 ppm free chlorine. • Weekly nitrite monitoring at five sample sites and two reservoirs. E. JOAQUIN ESQUIVEL, CHAIR | EILEEN SOBECK, EXECUTIVE DIRE 2 MacArthur Place Suite 150, Santa Ana, CA 92707 | www.waterboards.ca.gov 7 | January 24, 2024

Outreach

Required

- Newspaper Ad
- Social Media
- > Website

<u>Optional</u>

- Mailed Postcard
- Mesa Water Notify Alert



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THANK YOU!

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