MARINA COAST WATER DISTRICT

2025 PUBLIC HEALTH GOAL REPORT

MARCH 01, 2025

BACKGROUND

The Marina Coast Water District (District) provides drinking water to approximately 38,000 customers through approximately 10,800 service connections. California Health and Safety Code 116470 requires public water systems with more than 10,000 service connections to prepare a report if water quality measurements exceed Public Health Goals (PHGs) or Maximum Contaminant Level Goals (MCLGs). PHG's are established by the Office of Environmental Health Hazard Assessment (OEHHA). A PHG for a contaminant is set at a level in drinking water that poses no significant health risk if consumed for a lifetime. PHGs for cancer-causing chemicals are calculated by determining a "one-in-a-million" risk level if a person drank the same water for 70-years. MCLGs are set by the Environmental Protection Agency (EPA) and are the equivalent of PHGs. PHGs and MCLGs differ from Maximum Contaminant Levels (MCLs), as the latter are enforceable limits set by the EPA and the State Water Resources Control Board (State Board).

MCLs are set to a level as close as economically and technologically feasible to a PHG or MCLG. This PGH report will list all the contaminants that were detected within the District's water sources between 2022 and 2024 that were above a PHG or MCLG level, as well as the Best Available Treatment Technology and Cost Estimates that would be required to remove the contaminants.

WHERE YOUR WATER COMES FROM

The District provides potable water through seven active groundwater wells that pull from the Monterey Sub-Basin within the Salinas Valley Groundwater Basin. Wells located in Central Marina and the Ord Community are interconnected and provide redundant water supply throughout the entire service area. The wells are connected to water transmission and distribution mains that span a network of approximately 230 miles, with nearly 13 million gallons of storage capacity within the District's reservoirs.

As water, in the form of precipitation or runoff, passes through the soil and into the aquifers, it can pick up minerals and contaminants. Sources of contaminants can either be from human activities or naturally occurring within the aquifer's geological formations. The District regularly monitors and tests the water for a wide variety of constituents, regardless of their origin.

MONITORING AND REPORTING

In addition to this PHG report, the District annually provides a water quality report to its customers. The Consumer Confidence Report (CCR) details water quality testing and results from the prior calendar year performed within the District's water system. The CCR will show the level of a contaminant and its corresponding PHG or MCLG. The annual CCR is mailed directly to our customers and can also be found at https://www.mcwd.org/water_quality.html.

Due to the limitations of laboratory equipment in quantifying very low contaminant levels, the Division of Drinking Water (DDW) has established detection limits for the purpose of reporting (DLRs). DLRs are the level at which the accuracy of the reported contaminant quantity is considered reliable. Many DLRs are above the PHG or MCLG.

DDW also requires public water systems to provide public notification should a contaminant be detected at a level above a notification level (NL) or MCL. The District is pleased to report that it has had no detections above any NL or MCL during this reporting timeline.

BEST AVAILABLE TECHNOLOGY (BAT)

The EPA and State Board have identified the Best Available Technologies (BATs), which are the best methods for the treatment of water to reduce the levels of a contaminant below the MCL. Many different types of BATs are used within the water industry to remove contaminants, and what may work for one contaminant to reduce its level may not work for a different type of contaminant. Because the DLR is often times above the PHG, it is not feasible to determine the level of treatment required to reach the PHG or MCLG. In some instances, installing treatment for one contaminant may adversely affect other characteristics and the water quality. The BATs for the contaminants in this report are:

AA: Activated Alumina
C/F: Enhanced Coagulation/Filtration
ER: Electrodialysis Reversal
IX: Ion Exchange
LS: Enhanced Lime Softening
O/F: Oxidation/Filtration
RCF: Reduction, Coagulation, Filtration
RO: Reverse Osmosis
GAC: Granular Activated Carbon
PTA: Packed Tower Aeration.

Each contaminant in this report will list all available BATs that can be utilized. The District further reviewed all BATs and picked the most appropriate ones that would work in the District's current network of wells and reduce the number of treatment technologies required to treat each source.

CONTAMINANTS DETECTED ABOVE THE PUBLIC HEALTH GOAL

Arsenic

Public Health Goal (µg/L)	Maximum Contaminant Level (µg/L)	Range Detected (µg/L)	Average Detected (µg/L)	BATs available for treatment	BAT recommended if treatment pursued
0.004	10.00	Non-Detect – 6.8	2.86	AA, C/F, ER, IX, LS, O/F, RO	RO

Arsenic can occur naturally or come from human activities, such as improper disposal of production waste. Arsenic detections are prevalent in Monterey County and naturally occur in water due to the earth's geological formation. Arsenic in the District's service area is found in higher concentrations within deeper well formations. The District has detected Arsenic in five of its active wells. The DLR for Arsenic is 2 µg/L.

Arsenic is carcinogenic (causes cancer), and the health risk at the California PHG level of 0.004 µg/L is 1 per million persons for those who drink the same water for 70 years. When compared to the California MCL of 10 µg/L, that rate is 2.5 per thousand persons.

Trichloroethylene (TCE)

Public Health Goal (µg/L)	Maximum Contaminant Level (µg/L)	Range Detected (µg/L)	Average Detected (µg/L)	BATs available for treatment	BAT recommended if treatment pursued
1.7	5.0	Non-Detect – 2.3	0.4	GAC, PTA	GAC

Trichloroethylene (TCE) in water is typically a result of human activities, such as improperly discharged waste material. The U.S. Army commonly used TCE as a solvent on the former Fort Ord. TCE has been found in low levels in three of the District's seven active wells. The DLR for TCE is 0.5 µg/L.

TCE is carcinogenic, and the health risk at the California PHG level of 1.7 µg/L is 1 per million persons for those who drink the same water for 70 years. Compared to the California MCL of 5 µg/L, that rate is 3 per million persons.

Hexavalent Chromium

Public Health Goal (µg/L)	Maximum Contaminant Level (µg/L)	Range Detected (µg/L)	Average Detected (µg/L)	BATs available for treatment	BAT recommended if treatment pursued
0.2	10.0	3.4 – 8.4	3.2	IX, RCF, RO	IX, RO

Hexavalent Chromium can occur naturally or from industrial byproduct waste. Hexavalent Chromium has been detected in five of the District's seven wells. The DLR for Hexavalent Chromium is 0.1 µg/L.

Hexavalent Chromium is carcinogenic, and the health risk at the California PHG level of 0.2 µg/L is 1 per million persons for those who drink the same water for 70 years. The OEHHA has not yet evaluated the cancer risk at the California MCL.

Uranium

Public Health Goal (pCi/L)	Maximum Contaminant Level (pCi/L)	Range Detected (pCi/L)	Average Detected (pCi/L)	BATs available for treatment	BAT recommended if treatment pursued
0.43	20.0	Non-Detect – 6.1	1.5	C/F, IX, LS, RO	RO

Uranium can naturally occur or come from human-made activities from production waste. Uranium is found to be more prevalent in the deeper wells. Uranium has been detected in seven of the District’s active wells. The DLR for Uranium is 1 pCi/L.

Uranium is carcinogenic, and the health risk at the California PHG level of 0.43 picocuries-per-liter (pCi/L) is 1 per million persons for those who drink the same water for 70 years. Compared to the California MCL of 20 pCi/L, that rate is 5 per hundred thousand persons.

Gross Alpha

Maximum Contaminant Level Goal (pCi/L)	Maximum Contaminant Level (pCi/L)	Range Detected (pCi/L)	Average Detected (pCi/L)	BAT available for treatment	BAT recommended if treatment pursued
0	15.0	Non-Detect – 7.91	2.5	RO	RO

Gross Alpha particle activity can occur naturally or come from human-made activities from production waste. Gross Alpha is more prevalent in the deeper wells. Gross Alpha has been detected in seven of the District's active wells. The DLR for Gross Alpha is 3 pCi/L.

Gross Alpha is carcinogenic, and the health risk at the MCLG level of 0 pCi/L is 0 per million persons for those who drink the same water for 70 years. The actual cancer risk from radionuclides in drinking water depends on the type of particular radionuclide present.

Gross Beta

Maximum Contaminant Level Goal (pCi/L)	Maximum Contaminant Level (pCi/L)	Range Detected (pCi/L)	Average Detected (pCi/L)	BATs available for treatment	BAT recommended if treatment pursued
0	50.0	Non-Detect – 8.91	3.7	IX, RO	RO

Gross Beta particle/photon emitters can occur naturally or come from human-made activities from production waste. Gross Beta has been detected in seven of the Districts active wells. The DLR for Gross Beta is 4 pCi/L.

Gross Beta is carcinogenic, and the health risk at the MCLG level of 0 pCi/L is 0 per million persons for those who drink the same water for 70 years. The cancer risk from radionuclides in drinking water depends on the type of particular radionuclide present.

MARINA COAST WATER DISTRICT BEST TREATMENT OPTIONS/COSTS

In coordination with District staff, the District's consultant Schaaf and Wheeler Consulting Civil Engineers reviewed the BATs and developed cost estimates for treatment implementation based on the United States Environmental Protection Agency's treatment technology unit cost model. Due to the layout of the District's piping system and the different types of contaminants that would require treatment, the most cost-effective treatment for six of the seven contaminants in this report would be Reverse Osmosis (RO). In addition to RO, Granular Activated Carbon (GAC) would need to be used to remove TCE at three well sites. The cost to install RO and GAC at the recommended locations is presented below:

Reverse Osmosis Costs

Treatment Location	Total Capital Costs (2025 USD)	Annual O & M Costs (2025 USD)
Well 10	$7,304,000	$1,196,000
Well 11	$9,684,000	$1,632,000
Wells 29-35 (Centralized Treatment)	$26,070,000	$4,495,000

*Cost provided by Schaaf & Wheeler February 19, 2025, Memorandum

Granular Activated Carbon Costs

Treatment Location	Total Capital Costs (2025 USD)	Annual O & M Costs (2025 USD)
Well 29	$2,701,000	$121,000
Well 30	$2,701,000	$126,000
Well 31	$3,053,000	$145,000

*Cost provided by Schaaf & Wheeler February 19, 2025, Memorandum

The estimated annual cost of treatment utilizing RO and GAC for removing all contaminants within this report would be an additional $1,127.00 annually per user connection. These costs are estimates, and a low-interest loan is assumed to fund the construction costs. The actual cost could be much higher depending on rates and fees at the time of construction.

MARINA COAST WATER DISTRICT RECOMMENDATIONS

Most of the PHGs in this report are below the detectable limits. There is a high level of uncertainty about the effectiveness of removing the contaminants below the PHGs due to the limitations of current laboratory instrumentations used in the analysis. As the District's water quality has continued to meet all State and Federal safe drinking water standards, and the further reduction in most contaminant levels is not currently measurable, the benefits of costly treatment may not be realized. Therefore, the District will continue to monitor its source water regularly, and no further action is recommended.