



**Public Health Goals  
Escondido Water System  
2024**

**Presented to the  
Escondido City Council  
July 16, 2025**

# CITY OF ESCONDIDO

## REPORT ON CITY'S WATER QUALITY RELATIVE TO PUBLIC HEALTH GOALS 2022 – 2024

California Health and Safety Code Section 116470(b)

### **Background**

Provisions of the California Health and Safety Code specify that larger water utilities (>10,000 service connections) prepare a special report if any of their water quality measurements have exceeded any Public Health Goal (see definition below). The law also requires that where a PHG for a constituent has not been established, the water suppliers are to use the Maximum Contaminant Level Goals (MCLG) adopted by the United States Environmental Protection Agency (USEPA). Only constituents which have a California primary drinking water standard and for which either a PHG or an MCLG has been set are to be addressed.

There are a few constituents that are routinely detected in water systems at levels usually well below the drinking water standards for which no PHG or MCLG has yet been adopted. These will be addressed in the future as they are adopted in either the California or the Federal standards.

If a constituent was detected in the Escondido water supply in the years of 2022 through 2024 at a level exceeding an applicable PHG or MCLG, this report provides the information required for our customers. Included is:

- The numerical public health risk associated with the Maximum Contaminant Level (MCL) and the PHG or MCLG. (MCLs are set by the USEPA or the California Department of Public Health in their enforceable drinking water standards).
- The category or type of risk to health that could be associated with each constituent.
- The best treatment technology available that could be used to reduce the constituent level.
- An estimate of the cost to install that treatment if it is appropriate and feasible.

### **Goals vs Standards**

Public water supplies are strictly regulated for a host of contaminants. The most stringent standards are those set by the USEPA and the California Department of Public Health in their primary drinking water standards. These standards are called Maximum Contaminant Levels (MCL) and they are enforced by the California Department of Public Health. Tests for these contaminants are run on a required frequency using standard methodologies. Public drinking water systems must ensure compliance with these standards at all times.

Contrary to standards, there are also two sets of goals that may apply to various contaminants that may be found in drinking water supplies. The goals can be either state or federal goals. The goals are not enforceable, but they provide contaminant levels for which the water system operators should strive to meet.

Public Health Goals (PHGs) are set by the California Office of Environmental Health Hazard Assessment (OEHHA) which is part of Cal-EPA. The PHG's are not enforceable and are not required to be met by any public water system. They are set as goals based solely on public health risk considerations and they include a margin of safety

Maximum Contaminant Level Goals (MCLG) are the federal equivalent to PHGs, However, there is a difference in how levels for carcinogens are set at the Federal level. The Maximum Contaminant Level Goals for carcinogens are set at zero because the USEPA assumes there is no absolutely safe level of exposure to them. Conversely, PHG's are set at a level considered to pose no significant risk of cancer. This is usually denoted as a one-in-a-million cancer risk for a lifetime of exposure. Determinations of health risk at these low levels are frequently theoretical and have not been quantified or proven through scientific experimentation. .

### **Best Available Treatment Technology**

Both the USEPA and the California Department of Public Health adopt what are known as Best Available Technologies (BAT). These technologies take into account practical risk-management factors such as analytical detection capability, available treatment technology, benefits and costs. These are the best-known methods for reducing contaminant levels to the MCL. However, since many PHG's and all MCLG's are set much lower than the MCL, it is not always possible to determine what treatment is needed to further reduce contaminant concentrations to the low levels set in the PHG or MCLG. Unfortunately, the analytical tests to determine these very low levels are not always available or they do not provide reliable test results. In some cases, treatment processes that reduce one contaminant to a very low level may have adverse effects on other aspects of water quality.

### **Water Quality Data Considered**

Water quality data collected from the City of Escondido water system years of 2022, 2023 and 2024 for purposes of determining compliance with drinking water standards was considered in this report. This data was summarized in the annual Water Quality Reports for the same years and was mailed to our customers. The Water Quality Report for year 2024 report post card notification will be mailed to all of our customers on June 30, 2025. The constituents discussed below were detected in Escondido's drinking water at levels above the PHG, or if no PHG, above the MCLG.

### **Coliform Bacteria**

Each month approximate 140 – 200 samples are collected from the distribution system for coliform analysis. Occasionally, a sample was found to be positive for coliform bacteria, but repeat samples were negative and follow up actions were taken. A maximum of 1.80% of these samples were positive in any month (Maximum: 1.27% in 2022, 1.80% in 2023, and 0.62% in 2024)

In years of 2022 through 2024, there were 10 samples out of 6,004 (0.2%), indicating positive for total coliform (TC) with repeat samples were negative in all cases (positive TC numbers: 3 out of 1,972 in 2022; 5 out of 1,986 in 2023; and 2 out of 2,046 in 2024). The MCL for total coliform is 5% of monthly samples and the MCLG is 0% for monthly samples. The total coliform bacteria percentage levels for water in the distribution system were below the MCL at all times, but at times was over the MCLG.

Monitoring for total coliform bacteria is performed to minimize the possibility of pathogens in the water. Pathogens are organisms that may cause waterborne disease. Because coliforms are only a surrogate indicator of the potential presence of pathogens, it is not possible to state a specific numerical health risk. While USEPA normally sets MCLGs “at a level where no known or anticipated adverse effects on persons would occur”, they indicate that they cannot do so with total coliform bacteria.

Total coliform bacteria are used as an indicator organism. They are found everywhere in nature and are not generally considered harmful. They are used because of the ease in monitoring and analysis. If a positive sample is found, it indicates a potential problem that needs to be investigated. It is not at all unusual for a system to have an occasional positive total coliform sample. Follow up sampling indicates the presence or absence of further risk.

The City adds chlorine as a disinfectant during the treatment process, and also chloramines prior to distribution to assure that the water is free of pathogens. The residual levels of the disinfectant are carefully controlled to provide the best health protection without undesirable taste, odor or byproducts. This careful balance of treatment processes is essential to supplying Escondido’s customers with safe drinking water.

Other equally important measures that have been implemented include:

- An effective cross-connection control program.
- Maintenance of a disinfectant residual throughout the system.
- An effective monitoring and surveillance program.
- Maintenance of positive pressure in the distribution system.

## **Copper**

There is no MCL for copper. Instead, it is required that 90% of the samples taken from household taps and tested for copper cannot exceed an Action Level of 1.3 mg/L. The PHG for copper is 0.30 mg/L.

The Federal and State’s Lead and Copper Rule require that sampling be conducted once every three years for both lead and copper. The samples are taken by designated customers from kitchen or lavatory faucets. The sample is taken after the water sits in the plumbing at least 6 hours, without running the water to rinse or flush out contaminants.

The copper sampling in year 2024 indicates that the 90% level of copper samples taken from Escondido household taps was 0.55 mg/L, which is less than the Action Level of 1.3 mg/L but exceeds the PHG of 0.30 mg/L. The approximate 34% of the 57 samples collected in year 2024 for copper exceeded the PHG of 0.30 mg/L.

The category of health risk for copper is gastrointestinal irritation. Numerical health risk data on copper has not yet been provided by California EPA's Office of Environmental Health hazard Assessment.

The Escondido water system is in full compliance with the Federal and State Copper and Lead Rule. Based on extensive sampling, it was determined according to State regulatory requirements that the City does meet the Action Levels or Notification Levels for copper and lead. Therefore, the Escondido water system is deemed by the California Department of Health Services to have "optimized corrosion control" for the system. It is not prudent to initiate additional corrosion control treatment until such time as changing conditions warrant further action. The cost to reduce the copper level to zero is not known as the majority of copper and lead contamination comes from piping in individual residences.

### **Chlorite**

Chlorite is a disinfection byproduct produced in the treatment of drinking water with chlorine dioxide. Chlorine dioxide has been used for control of taste and odor associated with algae and decaying vegetation in the raw water supply as well as lower disinfectant-by-products levels in drinking water. Chlorine dioxide was applied seasonally at the Escondido Water Treatment Plant to reduce an odor when the raw water sources had observed a detectable odor.

The current chlorite MCL is 1.0 mg/L and the PHG is 0.05 mg/L.

The chlorite levels measured at Escondido distribution system when chlorine dioxide was being used during 2022 to 2024, ranged from 0.08 mg/L to 0.59 mg/L chlorite, but exceeded the PHG of 0.05 mg/L. (Range: 0.08 – 0.48 mg/L in 2022; 0.11 – 0.59 mg/L in 2023; and 0.34 – 0.59 mg/L in 2024)

Several studies reveal that oral exposure to chlorite can result in significant hematological, endocrine, reproductive, and gastrointestinal effects as well as changes in neurobehavioral development at levels higher than the MCL.

Based on our sampling, it was determined that the Escondido Water System meets the MCL for Chlorite, but exceeds the PHG.

### **Perchlorate**

Perchlorate is an oxidizing chemical used in a variety of industrial processes. Perchlorate can occur in the environment either through industrial contamination or from natural sources. It is apparently formed by sunlight or lightning interacting with oxygen and chlorine in the atmosphere, and falls to the earth in rain (Dasgupta *et al.*, 2005; Mohan, 2010). Plants can accumulate perchlorate from the water they take up. Perchlorate is also released to the environment from its use in highway flares, fireworks and other explosives, and rocket fuel. People are primarily exposed to perchlorate through consumption of food and water.

The PHG for perchlorate is 1 ug/L, and the MCL is 6 ug/L. The DLR is 1 ug/L.

The perchlorate levels measured during 2022 to 2024, ranged from ND (not detected) to 1.1 ug/L, and the average value is ND. (Range: ND – 1.1 ug/L in 2022, ND – ND in 2023, and ND – ND in 2024)

The BAT for the removal of perchlorate is ion exchange and biological fluidized bed reactor.

### **Gross Alpha Particle Activity**

Gross alpha particle activity is a measure of the total amount of radioactivity in a water sample attributable to the radioactive decay of alpha-emitting elements. Alpha particles are highly ionizing, but the particles travel short distances in air (less than 2 inches) before being absorbed. Alpha particles have little ability to penetrate objects; thus, they can be stopped by a sheet of paper or the outer layer of skin. The external hazard from alpha particles is minimal, but the internal hazard when they are inhaled or ingested may be significant.

The U.S. EPA's MCLG for gross alpha particle is zero, and the state of California MCL is 15 pCi/L. pCi, meaning picocuries are a measure of radon levels.

Gross Alpha particle was detected, and ranged from ND to 4.8 pCi/L and the average value is 3.1 pCi/L in year 2024.

The detection limit for reporting (DLR) of gross beta particle is 3 pCi/L.

These detections do not constitute a violation of drinking water regulations or indicate the water was unsafe to drink. The results could be considered typical for a California water agency.

### **Gross Beta Particle Activity**

Gross beta particle activity is a measure of the total amount of radioactivity in a water sample attributable to the radioactive decay of beta-emitting elements. Beta particles usually travel greater distances in air than alpha particles (about 6 feet) before being absorbed.

A low level of gross beta activity is relatively prevalent in the State's water supply, probably due to the ubiquitous nature of naturally occurring beta particle-emitting radionuclides.

The U.S. EPA's MCLG for gross beta particle is zero, and the state of California MCL is 50 pCi/L and Federal MCL is 4 mrem/yr (milliroentgen equivalent man).

Gross beta particle was detected, and ranged from 7.1 to 22.1 pCi/L in year 2024.

The detection limit for reporting (DLR) of gross beta particle is 4 pCi/L.

These detections do not constitute a violation of drinking water regulations or indicate the water was unsafe to drink.

### **Recommendations for Further Action:**

The City of Escondido drinking water system meets all State of California and USEPA drinking water standards set to protect public health, but it does exceed some of the public health goals. Costly treatment processes would be required to further reduce the levels of the constituents

identified in this report to meet PHG or MCLG that are significantly below the health-based MCL that have been established to provide “safe drinking water”. The effectiveness of additional treatment processes to provide significant reductions in constituent levels at these already low values is uncertain. In addition, the health protection benefits of further reductions are not clear and may not be quantifiable. Therefore, no action is proposed.

### **Summary of Findings:**

Overall, total coliform, copper, chlorite, perchlorate, gross alpha particle, and gross beta particle constituents were detected in our City’s water system at concentrations above the PHGs or MCLGs. Also, there are several inorganic and organic compounds, which are reported as ND (not detected) due to below the MDL (method detection limit) but the PHG level is much lower than MDL. At no time did the Escondido water system ever serve water containing contaminants above recognized and enforceable MCLs. The drinking water quality of the Escondido water system meets all drinking water standards to protect public health.