

More than 11,000 desalination plants are in operation throughout the world, producing more than 20 million cubic meters (m³)—roughly six billion gallons—of water per day. Also, some microorganisms unique to saline waters may not be removed by the desalination process or post disinfection. Most desalination plants use seawater and/or brackish water as their sources for drinking water production, however; membrane technologies are also used for wastewater treatment and for removing salts from processed wastewaters for recycling applications including prior-to-aquifer recharge. Due to rapid advances in technology and improved efficiencies, the cost of producing desalinated water is now approaching \$0.50 USD per cubic meter in large plants (\$1.89 per thousand gallons or Kgal), so it is becoming much more accessible in areas where alternative fresh water supplies are not available. WHO GDWQ cover a broad spectrum of contaminants from inorganic and synthetic organic chemicals, disinfection byproducts, microbial indicators and radionuclides. Health risks can be imparted from consumption of reconstituted or restabilized water from general reduced or selective mineralization, or from reduced intake of specific minerals like calcium and magnesium. Some issues that distinguish desalination processes from typical drinking water operations include: Source water quality (see Table 1) Total Dissolved Solids (TDS) in the range of 40,000 ppm for seawater and about 10,000 ppm for brackish water. High levels of metal salts including sodium, calcium, magnesium, bromides, iodides, sulfates and chlorides. Because desalination is applied to non-typical source waters and often uses non-typical technologies, the existing WHO GDWQ may not fully cover the unique circumstances that can be encountered during production and distribution of desalinated drinking water. The environmental impacts of desalination facility siting, operations and brine disposal can be significant. Treatment Reverse osmosis membranes and thermal distillation. Pretreatment and antifouling additives.