National Secondary Drinking Water Standards and Other Aesthetic Contaminants				
Secondary Contaminants				
Contaminant	SMCL	WQA Recommended Treatment Methods	Effects on Water	Sources of Contaminant in Drinking Water
Alkalinity (measured as Calcium Carbonate CaC03)	No Federal Limit Low: <30 mg/L High: >300 mg/L	Raise: Soda Ash Lower: White Vinegar Citric: Acid	Low alkalinity waters tend to dissolve minerals and metals High alkalinity waters tend to precipitate minerals and metals	Presence of bicarbonates, carbonates and hydroxides
Aluminum	0.05 to 0.2 mg/L depending on case-by-case circumstances	Cation exchange Reverse Osmosis Distillation Ultrafiltration Deionization	Colored or tinted water	Alum coagulation treatment Natural deposits
Chloride	250 mg/L	Reverse Osmosis Distillation Anion Exchange Electrodialysis Deionization	Salty taste	Natural deposits
Color	15 (cooler units)	Anion Exchange Activated Carbon Filtration Chlorination Reverse Osmosis Distillation Ozonation	Visible limit	Tannins Natural deposits Iron Copper Manganese
Copper	1.0 mg/L	Reverse Osmosis Distillation Cation Exchange (20% - 90%) Electrodialysis Submicron Filtration	Blue-green coloration and staining Metallic taste	Copper pipe corrosion Natural deposits Leaching from wood preservatives
Corrosivity	Non-corrosive	Calcite or Calcite/Magnesium Oxide Soda Ash Chemical Feed Polyphosphate Feed Removal of Hydrogen Sulfide Sodium Silicate Feed	Metallic tase Corrosive Fixture staining Leaking plumbing	Very high or very low TDS Dissolved gases in water, such as oxygen, carbon dioxide, and hydrogen sulfide Low pH
Fluoride	2.0 mg/L	Activated Alumina Reverse Osmosis Distillation Electrodialysis	Spotting and mottling of teeth	Natural deposits Fertilizer Aluminum industries Drinking water additive
Foaming Agents (MBAS) (methyl blue active substances)	0.5 mg/L	Chlorination Activated Carbon Ozonation Reverse Osmosis Distillation	Sudsing Bitter taste Odor	Detergent pollution Surfactants Pollution
Hard Water (measured as Calcium Carbonate CaC03)	No federal limit "Soft" < 17.1 "Slightly Hard" 17.1 to 60 "Moderately Hard" 120 to 180 "Very Hard" 180 and above	Remove all calcium and magnesium ions with a Cation exchange water softener	Consumes soap and makes cleaning more difficult Whitish scale deposits Soap curd and lime scum residue	Natural deposits causing calcium (limestone) and magnesium salts in raw water
Iron	0.3 mg/L (total iron)	Filtration (oxidizing filters) Cation exchange Oxidation/Precipitation /Filtration Disinfection	Rusty color Sediment Reddish or orange stains Metallic taste	Natural deposits
Manganese	0.05 mg/L (total manganese)	Filtration (oxidizing filters) Cation exchange Oxidation/Precipitation /Filtration Disinfection/Filtration	Dark brown/black stains Bitter, metallic taste	Natural deposits
MTBE (Methyl Tertiary Butyl Ether)	No federal limit	Activated carbon Air stripping	Sweet solvent odor at 0.020 mg/L Possible human carcinogen	"Oxygenator" additive for reformulated gasoline
Odor	3 (threshold odor number	Activated carbon Air stripping Oxidation/Filtration Disinfection/Filtration	Rotten egg Musty Garlic Chemical smell	Chlorine Hydrogen sulfide Organic matter Gasoline contamination Methane gas Septic contamination
pH	6.5 - 8.5	Increase by feeding soda ash Decrease by feeding white vinegar or citric acid Neutralizing filter (Calcite or Calcite/Magnesium)	Corrosive water	High carbon dioxide Natural balance of acid and alkalinity
Silver	0.1 mg/L	Coagulation/Filtration Submicron Filtration/Activated Carbon Ion Exchange Distillation Reverse Osmosis	Skin discolorization Graying of white part of eye	Natural deposits Industrial wastes Water sanitizing agent
Sulphate	250 mg/L	Reverse Osmosis Distillation Anion Exchange Electrodialysis	Medicinal taste Laxative effect	Natural deposits
Total Dissolved Solids (TDS)	500 mg/L	Reverse Osmosis Distillation Deionization by Ion Exchange Electrodialysis	Hard water deposits on glasses and fixtures	Natural deposit Brackish water intrusion
Zinc	5 mg/L	Reverse Osmosis Distillation Cation Exchange Electrodialysis	Metallic taste	Industrial wastes Natural deposits