Corrosion Control Treatment Options	
The goal of the corrosion control treatment pilot is to determine what the most effective treatment chemicals would be for our system. The two most common methods of corrosion control are **pH and/or alkalinity adjustment** and use of **phosphate based corrosion inhibitors**.	Date: 2/6/17

pH and/or alkalinity adjustment works by adjusting water chemistry to make it less corrosive to lead components in premise plumbing materials.

Corrosion inhibitors work by forming a protective coating on the interior surface of pipes which helps prevent or inhibit lead from leaching into the water.

The corrosion control treatment pilot will evaluate both methods with respect to both lead reduction and other criteria such as simultaneous compliance with other water quality regulations, compatibility with multiple sources of supply, impacts to sensitive and industrial users, discharge considerations, and cost.

A table of the most commonly used corrosion control chemicals is below.

Chemical Name	Corrosion control method	Other common uses	Other considerations
Baking Soda (sodium bicarbonate)	Alkalinity and pH adjustment	Baking leaveners, antacids, toothpaste	Most expensive of alkalinity adjustment chemicals
Carbon Dioxide	pH adjustment	Carbonated beverages	Lowers pH so would only be used in conjunction with other chemicals
Caustic Soda (sodium hydroxide)	pH adjustment	Soap making, food processing	
Hydrated Lime (calcium hydroxide)	Alkalinity and pH adjustment	Food processing, calcium supplements	Labor intensive Operation & Maintenance
Soda Ash (sodium carbonate)	Alkalinity and pH adjustment	Soaps and detergents, glass making, water softening, food processing	
Orthophosphate (Phosphoric Acid)	Corrosion inhibitor	Carbonated beverages, cheese making, baking leaveners	Wastewater discharge concerns; compatibility with wholesale customers using other sources
Zinc orthophosphate	Corrosion inhibitor	Dental cement	Wastewater discharge concerns; compatibility with wholesale customers using other sources

Corrosion control treatment practices used by other utilities are listed below.

Utility	Corrosion Control Method	Treatment Chemical
City of Salem, OR	Alkalinity adjustment with moderate pH increase	Soda ash
City of Everett, WA	Alkalinity adjustment with moderate pH increase	Soda ash
Seattle Public Utilities Seattle, WA	pH and alkalinity adjustment	Lime and carbon dioxide
City of Bellingham, WA	Alkalinity adjustment	Sodium bicarbonate
Metro Vancouver Vancouver, BC	pH and alkalinity adjustment	Lime and soda ash
East Bay Municipal Utility District Oakland, CA	pH and alkalinity adjustment	Lime
Massachusetts Water Resources Authority Boston, MA	pH and alkalinity adjustment	Soda ash and carbon dioxide
Providence Water Providence, RI	pH and alkalinity adjustment	Lime
DC Water Washington, DC	Corrosion inhibitor and pH adjustment	Orthophosphate and caustic soda
Great Lakes Water Authority Detroit, MI	Corrosion inhibitor	Orthophosphate
City of Chicago Chicago, IL	Corrosion inhibitor	Orthophosphate
Milwaukee Water Works Milwaukee, WI	Corrosion inhibitor	Orthophosphate
Long Beach Water Long Beach, CA	Corrosion inhibitor	Orthophosphate
Santa Clara Valley Water District San Jose, CA	Corrosion inhibitor	Orthophosphate
Kern County Water Agency Bakersfield, CA	Corrosion inhibitor	Orthophosphate
Los Angeles Department of Water & Power Los Angeles, CA	Corrosion inhibitor	Zinc orthophosphate
Southern Nevada Water Authority Las Vegas, NV	Corrosion inhibitor	Zinc orthophosphate