Water Quality Analysis Worksheet

Use this worksheet to guide your documentation, evaluation, and interpretation of water quality factors and how they may collectively impact your facility's water heating system.

Disclaimer: This worksheet is intended for informational and educational purposes only. It is not a substitute for professional water testing, analysis, or consultation. The values recorded using this worksheet should be verified by qualified personnel or certified laboratories. Always consult with water treatment specialists or equipment manufacturers for accurate assessments and recommendations tailored to your specific system and application.

1. General Information

Facility Name:	
Location:	
Date of Sample Collection:	
Sample Collected By:	
Testing Method:	

☐ Third-Party Lab ☐ On-Site Test ☐ Manufacturer Analysis

2. Water Sample Parameters

Parameter	Measured Value	Acceptable Range	Possible Risks	Flag for Attention?
pH Level		6.5–8.5	Low <6.5) corrosive (high >7.8) caustic	☐ Yes ☐ No
Total Dissolved Solids (TDS) (mg/L)		500 ppm*	Above 100 can lead to scale	☐ Yes ☐ No
Total Hardness (grains)		6 grains†	Scale, spotting: < 6 is ok for cold water. < 3 is ok for heated water	☐ Yes ☐ No

Total Alkalinity (mg/L)		100-200 ppm	Above 200 increases scaling potential	☐ Yes ☐ No
Chloride (mg/L)		< 250 ppm‡	Corrosive at high levels & high temp	☐ Yes ☐ No
Free Chlorine (mg/L)		0.5 ppm- 2.0 ppm	Corrosion at high levels (> 0.5 ppm)	☐ Yes ☐ No
Total Cl		3 ppm	Corrosion at high levels	☐ Yes ☐ No
Phosphate		N/A	Can coat media and plumbing with calcium phosphate scale	☐ Yes ☐ No
Ferrous Iron		0.3 ppm Total	Stains, metallic taste	☐ Yes ☐ No
Calcium Hardness		100 ppm	Scale, spotting	☐ Yes ☐ No
Copper		1.0 ppm	Blue green staining, media fouling	☐ Yes ☐ No
Combined Cl		3 ppm	Corrosion at high levels	☐ Yes ☐ No
T Iron		0.3 Total	Stains	☐ Yes ☐ No
Temp		N/A	N/A	☐ Yes ☐ No
Nitrate		10 ppm	Health issues	☐ Yes ☐ No
Silica		N/A	Health issues	☐ Yes ☐ No

* EPA Secondary Standard
† General guidance; system-specific tolerances may vary
‡ Chlorides are especially corrosive to stainless steel –monitor closely

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2.1 AquaSolve Feed Water Requirements

If your facility has a Lync AquaSolve anti-scale system installed, please refer to the below:

Combined Factors	Potential Implication	Notes
pH	6.5-8.5	
Total Hardness	30 grains	
Free Chlorine	<2ppm	
Total Iron	0.3ppm	
Manganese	0.05 ppm	
Copper	1.3 ppm	
Oil & H2S	Must be removed prior	
Silica	20 ppm	
Phosphates	3ppm or less	
TDS	1500 or less	

3. Parameter Interplay & System Impact

Combined Factors	Potential Implications	Notes
High pH + High TDS	Increased scaling potential	
Low pH + High Chlorides	Corrosive to metals, especially stainless steel	
High Hardness + High Turbidity	Scale buildup + sediment fouling	
High Alkalinity + High pH	Buffering may mask corrosive potential	
pH Drift + Chlorine	Accelerated breakdown of materials	
Other Observed Interactions		

TIP: Consider plotting these on a timeline or overlaying data if you're tracking changes over time.

4. Observations & System Effects

Visible signs of trouble (scale, discoloration, corrosion, etc.):

_____

Odors or taste complaints:

_____

System performance issues (loss of pressure, inefficiency, unusual cycling):

_____

5. Recommendations & Next Steps

☐ Retest water in ____ months

☐ Install or upgrade filtration/treatment system

☐ Consult with a water treatment specialist

☐ Share results with system manufacturer or certified service technician

☐ Adjust operating parameters based on findings

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Definitions

Hardness: The amount of mainly Calcium and Magnesium mineral salts present in the water. Hard water will cause scaling (lime scale) of plumbing, fixtures, and water using appliances. Results in higher soap usage as soap has a difficult time lathering in hard water. Will also cause spotting of dishes, shower doors, counter tops, etc. A hardness level greater than 3.0 GPG will cause scale and spotting issues.

Iron: Iron in water can cause yellow, red, and/or brown discoloration and staining on laundry, dishes, and fixtures as well as build up that can clog wells, pumps, aerators, shower heads and sprinklers and give water a metallic taste. Levels above 0.3 mg/l will begin to cause discoloration issues and staining. Levels above 1.0 mg/l are generally unacceptable.

Ferric Iron: is Iron that has been oxidized and converted into a solid (rust, particulate).

Ferrous Iron: is Iron that is dissolved in the water (also known as clear water iron) and has not been oxidized.

Copper: Copper is a natural mineral found in rock and soil, but the most common cause of copper in drinking water is due to corrosion of copper plumbing and fixtures. Copper is a health related contaminant. The EPA recommends a max contamination limit (MCL) of 1.3 mg/l. Copper in water will cause greenish/blue discoloration and staining and metallic taste.

pH: pH stands for potential Hydrogen or the measurement of the active Hydrogen ion (H+). A pH level of 7 is neutral. pH levels lower than 7 are considered acidic and the water will begin to leech metals not only out of the ground, but also will leech metals from plumbing and fixtures, which could result in water with heavy metal content and the pitting of pipes resulting in leaks. The normal pH range for drinking water is 6.5 to 8.5.

TDS: TDS is the Total Dissolved Solids, the measurement of any minerals, salts, metals, cation or anion dissolved in the water. The TDS test is used as an indicator to determine the general water quality. Less than 200 ppm is considered Excellent, 200-500 is Good, 500-1000 is usable, 1000-1500 passable, and over 1500 generally unacceptable. High TDS levels are an indicator of heavy contamination of one or more minerals, metals, or salts.

Alkalinity: Hydroxide (OH-), Carbonate (CO3 -2), and Bicarbonate (HCO3-) ions, which can combine with both acids and bases which act to buffer water and prevent sudden uncontrolled changes in pH. 100 – 200 ppm range is good. Above 200 will increase scaling potential.

Chlorine: A powerful oxidant used in water purification, disinfectants, and bleach, as well as other applications. Used in water treatment to disinfect, kill or de-activate bacteria, viruses, cysts, etc.

Phosphates: Used as a sequestering agent in water treatment. Found in detergents and many others household items.

UNITS OF MEASURE: GPG = grains per gallon, mg/l = milligrams per liter (same as ppm), ppm= parts per million (same as mg/l), ppb=parts per billion.

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