



# Evaluation Form for Corrosion Control Treatment

MAIL TO: Compliance Branch  
Public Water Supply Section  
1634 Mail Service Center  
Raleigh, North Carolina 27699-1634

## A. PWS General Information

Date: \_\_\_\_\_

1. PWS Name: \_\_\_\_\_
2. PWSID Number: \_\_\_\_\_
3. Contact Person: \_\_\_\_\_  
Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone: \_\_\_\_\_  
Fax: \_\_\_\_\_

4. Population served: \_\_\_\_\_
5. Person Responsible for preparing this form: \_\_\_\_\_  
Name: \_\_\_\_\_ Signature: \_\_\_\_\_  
Telephone: \_\_\_\_\_

## B. PWS Technical Information

1. Monitoring Results:  
Sampling Dates: From \_\_\_\_\_ To \_\_\_\_\_

First-Flush Tap Monitoring Results:

Lead:

Minimum concentration = \_\_\_\_\_ mg/L

Maximum concentration = \_\_\_\_\_ mg/L

90th percentile = \_\_\_\_\_ mg/L

Copper:

Minimum concentration = \_\_\_\_\_ mg/L

Maximum concentration = \_\_\_\_\_ mg/L

90th percentile = \_\_\_\_\_ mg/L

Point of Entry Monitoring Results (Averages):

	Points of Entry				
	1	2	3	4	5
Lead Concentration in mg/L:					
Copper Concentration in mg/L:					
pH:					
Temperature, EC:					
Alkalinity, mg/L as CaCO <sub>3</sub> :					
Calcium, mg/L as Ca:					
Conductivity, $\Phi$ mho/cm @ 25E C:					
Phosphate, mg/L as P:					
Silicate, mg/L as SiO <sub>2</sub> :					

Water Quality Parameter Distribution System Monitoring Results:  
Indicate whether field or laboratory measurement.

	Field	Lab
pH: minimum = _____ maximum = _____	_____	_____
Alkalinity: minimum = _____ mg/L as CaCO <sub>3</sub> maximum = _____ mg/L as CaCO <sub>3</sub>	_____	_____
Temperature: minimum = _____ EC maximum = _____ EC	_____	_____
Calcium: minimum = _____ mg/L as Ca maximum = _____ mg/L as Ca	_____	_____
Conductivity: minimum = _____ $\Phi$ mho/cm @ 25E C maximum = _____ $\Phi$ mho/cm @ 25E C	_____	_____
Orthophosphate: (if phosphate based inhibitor is used) minimum = _____ mg/L as P maximum = _____ mg/L as P	_____	_____
Silica: (if silica based inhibitor is used) minimum = _____ mg/L as SiO <sub>2</sub> maximum = _____ mg/L as SiO <sub>2</sub>	_____	_____

2. Existing Conditions:

Is treatment used? yes \_\_\_\_\_ no \_\_\_\_\_

Identify water source(s):

Source No. 1 \_\_\_\_\_  
Source No. 2 \_\_\_\_\_  
Source No. 3 \_\_\_\_\_

If treatment is used, is more than one source used at a time?

yes \_\_\_\_\_ no \_\_\_\_\_

Identify treatment processes used for each source:

<u>Process</u>	<u>No. 1</u>	<u>No. 2</u>	<u>No. 3</u>
Presedimentation	_____	_____	_____
Aeration	_____	_____	_____
Chemical mixing	_____	_____	_____
Flocculation	_____	_____	_____
Sedimentation	_____	_____	_____
Recarbonation	_____	_____	_____

Identify treatment processes used for each source:

<u>Process</u>	<u>No. 1</u>	<u>No. 2</u>	<u>No. 3</u>
2nd Stage mixing	_____	_____	_____
2nd Stage flocculation	_____	_____	_____
2nd Stage sedimentation	_____	_____	_____
Filtration:			
Single medium	_____	_____	_____
Dual media	_____	_____	_____
Multi-media	_____	_____	_____
GAC cap on filters	_____	_____	_____
Disinfection:			
Chlorine	_____	_____	_____
Chlorine dioxide	_____	_____	_____
Chloramines	_____	_____	_____
Ozone	_____	_____	_____
Granular Activated Carbon	_____	_____	_____

List chemicals normally fed:

List chemicals sometimes fed:

3. Present Corrosion Control Treatment:

None \_\_\_\_\_  
 Inhibitor \_\_\_\_\_  
 Date initiated \_\_\_\_\_  
 Present dose \_\_\_\_\_ mg/L  
 Range in Residual in Distribution System:  
     Maximum \_\_\_\_\_ mg/L      Minimum \_\_\_\_\_ mg/L  
 Brand name \_\_\_\_\_  
 Type \_\_\_\_\_  
 Has it been effective? Please comment on your experience.

pH/alkalinity adjustment \_\_\_\_\_  
 pH Target \_\_\_\_\_  
 Alkalinity Target \_\_\_\_\_ mg/L CaCO<sub>3</sub>

Calcium adjustment \_\_\_\_\_  
 Calcium Target \_\_\_\_\_ mg/L CaCO<sub>3</sub>

4. Water Quality:

Complete the table below for typical untreated and treated water quality data. Copy this form as necessary for additional sources. Include data for each raw water source, if surface supplies are used, and finished water quality information (point of entry) from each treatment plant. If wells are used, water quality information from each well is acceptable but not necessary if several wells have similar data. For groundwater supplies, include a water quality summary for each wellfield or grouping of wells with similar quality.

Include available data for the following:

Parameters	Untreated Supply	Treated Water (point of entry)
pH, units		
Alkalinity, mg/L as CaCO <sub>3</sub>		
Conductivity, $\mu$ mho/cm @ 25E C		
Total dissolved solids, mg/L		
Calcium, mg/L Ca		
Hardness, mg/L as CaCO <sub>3</sub>		
Temperature, EC		
Chloride, mg/L		
Sulfate, mg/L		

5. Distribution System:

Does the distribution system contain lead service lines?

yes \_\_\_\_\_ no \_\_\_\_\_

If your system has lead service lines, mark below the approximate number of lines which can be located from existing records.

None \_\_\_\_\_ Some \_\_\_\_\_ Most \_\_\_\_\_ All \_\_\_\_\_

Is the distribution system flushed?

None \_\_\_\_\_ Some \_\_\_\_\_ Most \_\_\_\_\_ All \_\_\_\_\_

6. Historical Information:

Is there a history of water quality complaints?

yes \_\_\_\_\_ no \_\_\_\_\_

If yes, then answer the following:

Are the complaints documented? yes \_\_\_\_\_ no \_\_\_\_\_

Mark the general category of complaints below. Use:

- 1 for some complaints in this category
- 2 for several complains in this category
- 3 for severe complaints in this category

Categories of complaints:

Taste and odor \_\_\_\_\_  
Color \_\_\_\_\_  
Sediment \_\_\_\_\_  
Other (specify) \_\_\_\_\_

Have there been any corrosion control studies?

yes \_\_\_\_\_ no \_\_\_\_\_

If yes, please indicate:

Date(s) of study From \_\_\_\_\_ To \_\_\_\_\_  
Study conducted by PWS personnel? yes \_\_\_\_\_ no \_\_\_\_\_  
Brief results of study were \_\_\_\_\_

Study results attached? yes \_\_\_\_\_ no \_\_\_\_\_

Were treatment changes recommended? yes \_\_\_\_\_ no \_\_\_\_\_

If yes:

Were treatment changes implemented? yes \_\_\_\_\_ no \_\_\_\_\_  
Have corrosion characteristics of the treated water changed? yes \_\_\_\_\_ no \_\_\_\_\_

If yes, how has change been measured?

General observation \_\_\_\_\_  
Coupons \_\_\_\_\_  
Frequency of complaints \_\_\_\_\_  
Other \_\_\_\_\_ Briefly indicate \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

7. Treatment Constraints:

Optimal corrosion control treatment means the corrosion control treatment that minimizes the lead and copper concentrations at users' taps while insuring that the treatment does not cause the water system to violate any State or national primary drinking water regulations. Please indicate below which constraints to treatment will apply to your PWS. Use the following code:

- 1 Some constraint = Potential Impact but Extent is Uncertain.
- 2 Significant constraint = Other Treatment Modifications Required to Operate Option.
- 3 Severe constraint = Additional Capital Improvements Required to Operate Option.
- 4 Very severe constraint = Renders Option Infeasible.

Constraint	Treatments		
	pH/Alkalinity adjustment	Calcium adjustment	Inhibitor PO <sub>4</sub> Si
A. Regulatory			
SOCs/IOCs			
SWTR: Turbidity			
Total Coliforms			
SWTR/GWDR: Disinfection			
Disinfection Byproducts			
Lead and Copper Rule			
Radionuclides			
B. Functional			
Taste & Odor			
Wastewater Permit			
Aesthetics			
Operational			
Other			

8. Evaluation:

Briefly summarize the review of the corrosion control literature that pertains to your PWS. A report or summary can be appended to this form if preferred.

Were other similar facilities located which are experiencing successful corrosion control?  
yes \_\_\_\_\_ no \_\_\_\_\_

If yes, identify their corrosion control treatment method.

- None \_\_\_\_\_
- pH/Alkalinity adjustment \_\_\_\_\_
- Calcium adjustment \_\_\_\_\_
- Inhibitor \_\_\_\_\_
  - Phosphate based \_\_\_\_\_
  - Silica based \_\_\_\_\_

9. Recommendations:

The corrosion control treatment method installed or being proposed is:

pH/Alkalinity adjustment \_\_\_\_\_  
Target pH is \_\_\_\_\_ units  
Target alkalinity is \_\_\_\_\_ mg/L as CaCO<sub>3</sub>

Calcium adjustment \_\_\_\_\_  
Target calcium concentration is \_\_\_\_\_ mg/L Ca

Inhibitor \_\_\_\_\_  
Phosphate based \_\_\_\_\_  
Brand name \_\_\_\_\_  
Target dose \_\_\_\_\_ mg/L  
Target residual \_\_\_\_\_ mg/L orthophosphate as P  
Silica based \_\_\_\_\_  
Brand name \_\_\_\_\_  
Target dose \_\_\_\_\_ mg/L  
Target residual \_\_\_\_\_ mg/L as SiO<sub>2</sub>

Rationale for the proposed corrosion control treatment is:

Discussed in the enclosed report \_\_\_\_\_  
Briefly explained below

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PWSID \_\_\_\_\_

List your proposed or operating guidelines:

Parameter

Operating Range

Briefly explain why these guidelines were selected.

10. Please provide any additional comments that will assist in determining optimal corrosion control treatment for your PWS.