

**KEEP CALM
&
FOLLOW
THE RULES**

Federal Citations

Water Quality Parameter Monitoring:
40 CFR 141.87

What Size System am I under the Lead and Copper Rule?

| What Size System am I under the Lead and Copper Rule? | Population Served* |
|---|--------------------|
| Large | > 50,000 |
| Medium | 3,301 – 50,000 |
| Small | ≤ 3,300 |

* Transient populations served are not factored in to the population served

Water Quality Parameter (WQP) Monitoring

Objectives

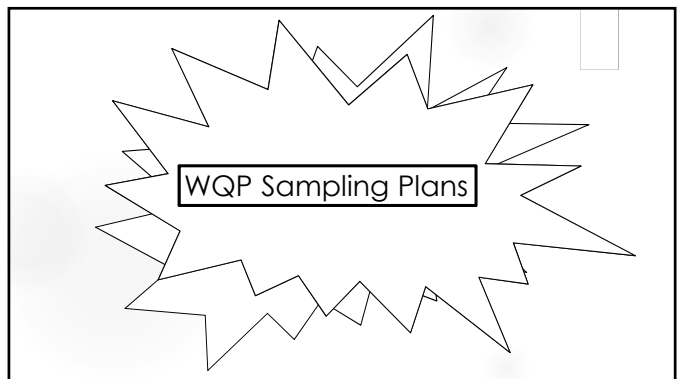
- ▶ Determine water corrosivity
- ▶ Identify appropriate corrosion control treatment
- ▶ Determine whether corrosion control treatment is being properly maintained

Schedule Types

1 • Initial

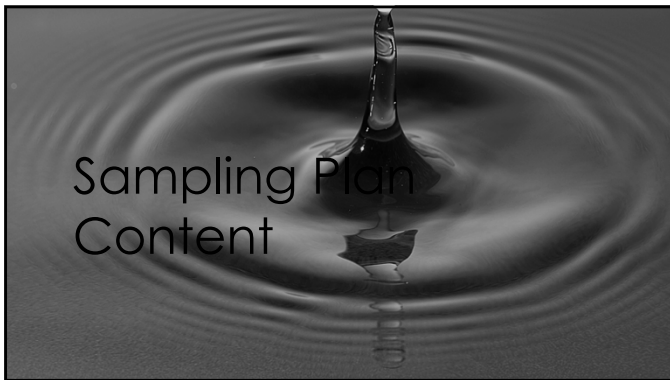
2 • Follow-Up

3 • Optimal



Applicability & Content

- ▶ All systems required to conduct Lead and Copper monitoring should have a WQP Sampling Plan
 - ▶ Monitoring frequency/schedule for POE and DS taps
 - ▶ Identify which WQPs are required to be monitored
 - ▶ Standard, reduced, and alternate sites
 - ▶ Site selection justification
 - ▶ Distribution Map
 - ▶ Sample Collection & Analysis Procedures
 - ▶ Action Plans



Sampling Plan Content

- ▶ The plan shall include the following general water system information:
 - ▶ System name & PWSID number
 - ▶ System type (GW, SW, GUDISW, SWP, GWP)
 - ▶ List of sources including their facility ID
 - ▶ Treatment highlighting corrosion control treatment
 - ▶ Contact information for the system owner and operator
 - ▶ Total number of service connections
 - ▶ Population served (excluding transient populations)
 - ▶ Date plan was prepared (and revision date)
 - ▶ Signature of Licensed Operator indicating review/approval

Sampling Plan Content

- ▶ Specific information pertaining to WQP Monitoring
 - ▶ Designated primary and alternate sample sites
 - ▶ EPTDS Monitoring requirements/schedule
 - ▶ DS tap monitoring requirements/schedule
 - ▶ Compliance determination
 - ▶ Action Plans for:
 - ▶ Treatment Technique Violation
 - ▶ Monitoring and Reporting violation

Distribution System Map

Distribution system map that labels the following water system components:
- Water source(s);

- ▶ Interconnections
- ▶ Treatment plants (including booster stations)
- ▶ Storage tanks
- ▶ Water main materials
- ▶ Pressure zones
- ▶ Blow offs/flushing points and
- ▶ Maximum residence time sites and/or areas of high water age
- ▶ Standard sampling sites
- ▶ Alternate sampling sites





Tap Sampling Sites per Population

▶ The number of samples sites utilized to sample throughout the DS is based upon the system's residential and non-transient population served

| System size (Population Served) | No. of Standard Distribution Sites for WQPs | No. of Reduced Distribution Site for WQP |
|---------------------------------|---|--|
| > 100,000 | 25 | 10 |
| 10,001 – 100,000 | 10 | 7 |
| 3,301 – 10,000 | 3 | 3 |
| 501 – 3,300 | 2 | 2 |
| < 500 | 1 | 1 |

Distribution System (DS) Monitoring Considerations

- ▶ Two WQP samples must be collected from each representative DS site at different times in the monitoring period to ensure water quality data is representative of seasonal changes that can take place during a monitoring period
- ▶ DEP may require additional DS sites to represent water quality more evenly throughout the distribution system
 - ▶ system required to collect from 3 distribution system sites has 7 distinct pressure zones;
 - ▶ 7 distribution system samples maybe required
- ▶ If there are seasonal sources, monitoring schedule should reflect variability in sources

** Be sure to include the site specific justification for each tap sample site*

Note the Following When Selecting DS Sample Sites:

- ▶ Avoid areas where maintenance or flushing is conducted to reduce the chance of water quality upsets
- ▶ Avoid fire hydrants and storage tank taps
- ▶ Avoid sampling sites where routine access is an issue as repeat sampling may be necessary following an excursion (e.g. Schools, business with limited hours, residences)
- ▶ WQP Plan should include a protocol if sample site changes (BWSE-19)

Entry Point to the Distribution System (EPTDS) Monitoring Considerations

- ▶ Permanent, active Interconnections
 - ▶ Required to be monitored as EPTDS
- ▶ Seasonal Sources
 - ▶ Wells, Treatment Plants, Interconnections
 - ▶ Required to be monitored as EPTDS during operational periods

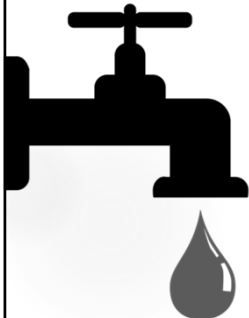
Additional WQP sampling may be required based on the dynamics of the water system

Groundwater EPTDS Monitoring

If only groundwater is being utilized, EPTDS monitoring may be limited to representative sites with DEP's approval as per 40 C.F.R. 141.83 (3)

- ▶ If water from untreated groundwater sources mixes with water from treated groundwater sources, the system must monitor for WQP both at representative EPTDS receiving treatment and representative EPTDS receiving no treatment

Monitoring Schedules & Analytes



Initial WQP Monitoring

SMALL & MEDIUM SYSTEMS

When is Initial WQP Monitoring Required?

- ▶ Within 6 months of the beginning of the monitoring period in which the lead and/or copper action level was exceeded
 - ▶ January – June
 - ▶ July – December
 - ▶ June – November

Systems that have already started follow-up or optimized monitoring do not trigger back to initial monitoring even if exceed an action level.

Initial Parameters & Frequency

- ▶ pH
- ▶ Alkalinity
- ▶ Calcium
- ▶ Conductivity
- ▶ Temperature
- ▶ Orthophosphate
- ▶ Silica

- ▶ 2 sets of samples at each EPTDS and DS Tap
 - ▶ Each set must be collected on different days and should account for seasonal variability
 - ▶ Required # of DS taps is based on population
 - ▶ 40 CFR 141.87(a)(2)

In addition to these parameters, it is strongly recommended that chloride, sulfate, iron, and manganese be analyzed at each EPTDS, permanent interconnection points, and DS location(s).

$$\text{Effectiveness} = \frac{\text{Achieved}}{\text{Desired}}$$

Follow-Up WQP Monitoring

When is Follow-Up WQP Monitoring Required?

- ▶ 2 consecutive 6-month monitoring periods immediately following installation of CCT
 - ▶ Begins January 1st or July 1st, whichever is sooner

Lead and Copper tap monitoring also required during these 2 consecutive 6-month monitoring periods

Follow-Up Parameters & Frequency

- EPTDS
 - ▶ Biweekly
 - ▶ pH
 - ▶ Alkalinity
 - ▶ Orthophosphate
 - ▶ Silica
 - ▶ Dosage rate of chemical
- DS Taps
 - ▶ Required # of distribution taps is based on population
 - ▶ 40 CFR 141.87(a)(2)
 - ▶ 2 sets of samples collected on different days (to account for seasonal variability)
 - ▶ pH
 - ▶ Alkalinity
 - ▶ Orthophosphate
 - ▶ Silica
 - ▶ Calcium

Setting Optimal WQP Values

- ▶ Submit recommended optimal WQP values (form BWSE-LC03) within 30 days of completing follow-up monitoring
 - ▶ Recommend for each WQP at each POE and distribution system
 - ▶ Division will only be setting minimums



Optimal

AFTER STATE HAS SET OPTIMAL WQP VALUES

When is Optimal WQP Monitoring Required?

- ▶ Each 6-month monitoring period after Division sets Optimal WQP Values
 - ▶ Beginning January 1st or July 1st, whichever is sooner

All systems utilizing CCT, regardless of size, will be required to conduct this monitoring for all monitoring periods in which the system is in operation.

Optimal Parameters & Frequency

- EPTDS
 - ▶ Biweekly
 - ▶ pH
 - ▶ Alkalinity
 - ▶ Orthophosphate
 - ▶ Silica
 - ▶ Dosage Rate of Chemical
 - ▶ Calcium
- DS Taps
 - ▶ Required # of distribution taps is based on population
 - ▶ 40 CFR 141.87(a)(2)
 - ▶ 2 sets of samples collected on different days (should account for seasonal variability)
 - ▶ pH
 - ▶ Alkalinity
 - ▶ Orthophosphate
 - ▶ Silica
 - ▶ Calcium

Is My System Eligible for Reduced Optimal WQP Monitoring?

- ▶ Maintain Optimal WQP Values for 2 consecutive 6-months
 - ▶ Reduce # of distribution taps [40 CFR 141.87(a)(2)]
- ▶ Maintain Optimal WQP Values for 3 consecutive years (6 consecutive 6-months)
 - ▶ Sample at reduced # of distribution taps annually
- ▶ Maintain Optimal WQP Values for 3 consecutive annual monitoring periods
 - ▶ Sample at reduced # of distribution taps triennially

Note that there is no sample site reduction for EPTDS sampling

Corrosion Control Treatment Recommendation

Corrosion Control Treatment (CCT) Recommendation

- ▶ Submit recommendation within 6 months from end of monitoring period
 - ▶ June 30th, December 31st, or March 30th
- ▶ Recommend 1 or more of the following:
 - ▶ Alkalinity adjustment
 - ▶ pH adjustment
 - ▶ Calcium hardness adjustment
 - ▶ Orthophosphate/silicate based corrosion inhibitor

CCT Recommendation Approved

- ▶ Install approved CCT process within 24 months
 - ▶ Required to obtain proper approvals/permits from administrative authority
- ▶ Within 30 days of installation submit:
 - ▶ Construction Completion Certification (Community) OR
 - ▶ CCT Installation Certification Form (Nontransient)

Sampling Collection and Analysis

Certified Laboratory
or
Person Acceptable to the State



Person Acceptable to the State

Licensed Operator or someone trained by a Licensed Operator

Responsibilities

- ▶ Use acceptable analytical methods detailed in 40 CFR 141.23(k)(1)
- ▶ Conduct proper calibrations and maintain records of all QA/QC tasks
- ▶ Submit results on the WQP Monitoring Report Form for Approved Party via email to watersupply@dep.nj.gov

Sample Collection and Analysis

- ▶ If the sample collection and analysis is being conducted by a certified laboratory, the plan need only include
 - ▶ Name and contact information of contracted laboratory
- ▶ If the sample collection and/or analysis is being conducted by an approved person, please include the following:
 - ▶ Identification of primary and alternate sample collectors
 - ▶ Established sample container preparation and transport procedures
 - ▶ Established sample collection procedures
 - ▶ Established sampling analysis procedures

Refer to the Office of Quality Assurance for standard procedures (<http://www.nj.gov/dep/enforcement/oaqa.html>)

Collection of WQP Samples

If Collect samples as follows:

- ▶ Remove an aerator if present
- ▶ Fully flush the tap (for a minimum of 30 seconds)
- ▶ Collect and analyze sample for temperature and pH in the field
- ▶ Collect the samples for all other WQPs

When collecting WQP samples, note the following observations:

- ▶ Color
- ▶ Suspended solids
- ▶ Flushing time required prior to achieving acceptable sampling conditions

Remember to take precaution to avoid the introduction of air bubbles into the sample, as it may affect the pH, conductivity and dissolved oxygen content.

Establish Action Plans

- MONITORING & REPORTING VIOLATION
- SINGLE EXCURSION
- TREATMENT TECHNIQUE VIOLATION

WQP Monitoring

Initial WQP Monitoring

- ▶ Include a plan for submitting a CCT recommendation following completion of initial WQP monitoring

Follow-up Monitoring

- ▶ Include a plan for submitting recommended optimal WQP values to DEP following completion of follow-up WQP monitoring

Optimal Monitoring

- ▶ Include a plan for if a single excursion is incurred and for if a treatment technique violation is incurred

Monitoring & Reporting Violation

- ▶ Report the violation to DEP within 48 hours of determining the noncompliance
- ▶ Deliver a Tier 3 public notification to your customers
- ▶ Submit a Public Notification Certification Form (BWSE-53)
- ▶ Include a discussion of the violation in your CCR



Single Excursion

Outline steps the system will take to confirm, inspect, and adjust treatment units as necessary.

* Only required if on Optimal WQP Monitoring

Treatment Technique Violation

9 OR MORE EXCURSIONS IN 12 MONTH COMPLIANCE PERIOD

Treatment Technique Violation

* Only required if on Optimal sampling schedule

- ▶ Report violation to NJ DEP within 48 hours
- ▶ Deliver public notice (Tier 2) within 30 days
- ▶ Submit a Public Notification Certification Form (BWSE-53)
- ▶ Include a discussion of the Violation in your CCR
- ▶ Return to standard (every 6-months) WQP tap monitoring AND lead and copper tap monitoring

Continue to Update Sampling Plans as Necessary

- ▶ The system shall update the plan as needed based on any change within the water system, such as, but not limited to, source water changes, treatment changes, etc.
- ▶ Future submission will be required prior to current plan's approval expiration date.

Key points

- ▶ WQP Sampling applies to ALL large systems and only those Small/Medium systems that have ALEs and/or CCT installed
- ▶ DS sample sites may be the same as those used for Coliform Sampling
- ▶ EPTDS sites should include all interconnections and protocols should be included for seasonal sources.
- ▶ Initial Monitoring – Following an ALE to determine Optimal CCT
 - ▶ Within 6 months of an ALE
- ▶ Follow-Up Monitoring – to determine Optimal WQP values
 - ▶ After Installation of CCT
- ▶ Optimal Monitoring – To assist in maintaining optimized CCT
 - ▶ Indefinite

Resources

- ▶ EPA's *Lead and Copper Rule Monitoring and Reporting Guidance for Public Water Systems*
- ▶ EPA's *How to Determine Compliance with Optimal Water Quality Parameters as Revised by the Lead and Copper Rule Minor Revision*
- ▶ *Water Quality Parameter Sampling Plan Guidance by the New Jersey Department of Environmental Protection Division of Water Supply and Geoscience*

“ Lead Team Bureau of Water System Engineering ”

Remember, when contacting the Bureau please reference the following:

- ▶ PWSID Number
- ▶ Letter Number

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Questions

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