

Lead & Copper Sampling Plan Guidance

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OUTLINE

- Sampling Plan Content
- Materials Evaluation
- Designation of Sample Sites
- Monitoring Schedule
- Sampling Protocols
- Approved Methods
- Invalidation
- Plan of Action for Lead and Copper Exceedance

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SAMPLING PLAN CONTENT

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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
 - Contact information for bulk purchasers and wholesalers
 - All installed treatment highlighting corrosion control treatment and the appropriate facility ID
 - 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)
 - Name/contact information of the person who prepared/revised the plan

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Sampling Plan Content

All community and non-transient non-community water systems **must** develop a sample site location plan and which shall be maintained and on record for submission to the New Jersey Department of Environmental Protection (NJDEP) and/or the administrative authority upon request.

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Sampling Plan Content

- **Specific** information pertaining to the Lead and Copper Rule:
 - Materials evaluation of the distribution system
 - Designated primary and alternate sample sites and the sample site tier designation
 - Distribution tap monitoring requirements/schedule
 - Sampling protocols and customer certification
 - Sample invalidation procedures
 - Compliance determination
 - Action Plans for:
 - Action Level exceedance
 - Individual result greater than an action level
 - Monitoring and Reporting violation
 - Lead Consumer Notice

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Sampling Plan Content

The system shall update the plan as needed based on any change within the water system, such as, but not limited to, water main replacements, treatment change, lead service line replacement, etc.

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MATERIALS EVALUATION
40 C.F.R. 141.86

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Materials Evaluation

- Objective: Identify a pool of targeted sampling sites that meet the tier criteria for lead and copper sampling, also include the resources used to identify selected sites.
- The water system must identify if the following categories of piping and plumbing materials are present in the distribution system:
 - Lead from piping, solder, caulking, interior lining of distribution mains and home plumbing
 - Copper from piping, service lines and home plumbing
 - Galvanized piping, service lines, and home plumbing
 - Ferrous piping material such as cast iron and steel

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Materials Evaluation

- **Distribution System Materials:**
 - Distribution system maps and record drawings
 - Capital improvement plans and/or master plans for distribution system development
 - Utility records
 - Results from service line sampling where lead service lines are suspected to exist but their presence is not confirmed
 - Results from community survey

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Materials Evaluation

- **Distribution System Materials (cont.):**
 - Inventory of Lead Service Lines (LSLs)
 - Including replacements and whether they were whole or partial
 - Indication of which portion of the LSL is owned by the water system/homeowner
 - Sampling procedure for customer’s home when LSL is replaced

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Materials Evaluation

- **Interior Plumbing Materials:**
 - County appraisal district records
 - Contacts within the water system, municipal office or other local officials
 - Survey results from area plumbers who are asked about when and where copper pipe with lead solder was used
 - Documented interviews of residents- letters, phone survey, personal contact, etc.
 - Documented interviews of local contractors, developers, and builders

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Materials Evaluation

- Once samples site materials are confirmed, select sites that are representative of system
 - Include reasoning in plan
- Include map showing where standard and alternate sample sites are located

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Materials Evaluation Certification

- Form BWSE-14 for community water systems to certify the materials evaluation and sample sites used in last sampling event. Details include
 - Sample Site Tier Information
 - Lead Service Lines
- Form BWSE-17 for non-community water systems to certify the materials used in the sites of the sampling pool. Details include
 - Site History
 - Plumbing History
 - Treatment Controls
- Form BWSE-15 for community and non-community water systems to confirm tier information from sites used in most recent sampling event

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Materials Evaluation Certification

- Signatures by Owner/Executive Director and W-Operator
 - An authorized water system official or owner and the licensed (W) water operator must sign and date the form. Please refer to the chart below to determine the signature of operator required

| Population | Signature of Operator Required |
|---|--------------------------------|
| < 1,500 with more than 100 service connections | W-1 |
| 1,501 to 15,000 | W-2 |
| 15,001 to 50,000 | W-3 |
| PWS not required to have W operator (e.g. VSWS) | VSWS operator or T operator |

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DESIGNATION OF SAMPLE SITES

40 C.F.R. 141.86

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Designation of Sample Sites

| Population Served* | Minimum Number of Standard Sites | Minimum Number of Reduced Sites | Recommended Minimum Number of Sites in Sampling Pool |
|--------------------|----------------------------------|---------------------------------|--|
| > 100,000 | 100 | 50 | 150 |
| 10,001 – 100,000 | 60 | 30 | 90 |
| 3,301 – 10,000 | 40 | 20 | 60 |
| 501 – 3,300 | 20 | 10 | 30 |
| 101 – 500 | 10 | 5 | 20 |
| ≤ 100 | 5 | 5 | 10 |

*Population served only accounts for residential and non-transient population

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Sample Site Tier Requirements

| Community Water Systems | |
|-------------------------|--|
| Tier 1 | Single-Family Structures: <ul style="list-style-type: none"> Served by a lead service line; and/or Contain copper pipes with lead solder installed after 1982 or contain lead pipes. *When multiple-family residences comprise at least 20% of the structures served by a water system, the system may include these types of structures in its sampling pool. |
| Tier 2 | Buildings, including multiple-family residents: <ul style="list-style-type: none"> Are served by a lead service line; and/or Contain copper pipes with lead solder installed after 1982 or contain lead pipes. |
| Tier 3 | Single family structures that contain copper pipes with lead solder installed before 1983 |
| Other | Structures with other plumbing materials |

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Sample Site Tier Requirements

| Non-Transient Non-Community | |
|-----------------------------|---|
| Tier 1 | Buildings: <ul style="list-style-type: none"> Served by a lead service line; and/or Contain copper pipes with lead solder installed after 1982 or contain lead pipes. |
| Tier 2 | Buildings that contain copper pipes with lead solder installed before 1983 |
| Other | Structures with other plumbing materials |

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Tier Category

| Sample Category | Description |
|-----------------|---|
| i | Single family residence with lead service line |
| ii | Single family residence with lead solder copper piping constructed after 1982 |
| iii | Single family residence with lead plumbing after 1982 |
| iv | Multi-family residence with lead service line |
| v | Multi-family residence with lead solder copper piping constructed after 1982 |
| vi | Multi-family residence with lead plumbing |
| vii | Single family home with lead solder copper piping constructed before 1983 |
| viii | Single family home that does not meet Tier 1, 2, or 3 criteria |
| ix | Multi-family home that does not meet Tier 1, 2, or 3 criteria |
| x | Non-residential building with lead service line |
| xi | Non-residential building with lead solder copper piping constructed after 1982 |
| xii | Non-residential building with lead plumbing |
| xiii | Non-residential building with lead solder copper piping constructed before 1983 |
| xiv | Non-residential building that does not meet Tier 1, 2, or 3 criteria |

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Selecting Sample Sites

- Residential Buildings
 - Only kitchen and bathroom taps shall be sampled
- Non-Residential Buildings
 - Only taps typically used for human consumption shall be sampled
 - Drinking Water fountains
 - Kitchen/Food Prep areas

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Selecting Sample Sites (cont.)

- Does your water system contain Lead Service Lines?
 - If yes, at least 50 percent of the sampling sites shall be those served by a lead service line
- Does your water system have lead goosenecks?
 - If yes, these can be counted towards the 50 percent noted
- Is there POE treatment into the building and/or POU treatment at specific taps for inorganics removal?
 - If yes, do not collect samples from these locations
- Has the building and/or tap been inaccessible to use?
 - If yes, do not collect a sample from that location

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Designation of Sample Sites

- Sampling plan shall include the following:
 - Sites used for standard lead and copper monitoring
 - Sites used for alternate locations
 - Tier designation for all sites
 - PbCu Sample Location Spreadsheet (BWSE-18)
 - List of current and future sites that will be used in the sampling pool to be used.
 - Required to submit electronically
- Protocol if a sampling site no longer meets the tier requirements or if the customer refuses to participate

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Designation of Sample Sites

- What if a sample site in my pool no longer meets tier criteria?
 - Submit the BWSE-18 form, only need to list the site(s) being changed and the new site(s) to be added.
- What if a sample site previously sampled is not accessible for the next sampling event?
 - Collect a sample from another site within the existing sample pool or identify a new site that meets the tier criteria to collect a sample
 - Submit the Sample Site Change form (BSDW-56)

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Customer Participation

- Contact customers early and determine whether their home still meets the tier criteria as a sample location will ensure enough sample sites are available
 - Outline the process in which the system will select and contact the customers for sampling
- If routine monitoring will involve more than the minimum number of required sites, the written plan must detail this routine additional sampling, and the submission of results to calculate compliance.

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MONITORING SCHEDULE

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Monitoring Schedule

- Designate the frequency of sample collection and provide a sample collection schedule
 - Identify scenarios that would require a change of monitoring schedule
 - Action Level Exceedance
 - Treatment Technique Violation (Optimal WQP)
- Recommended samples collected early in the monitoring period

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Reduced Sampling

- Each water system must complete at least two consecutive 6-month standard monitoring periods, not exceeding the lead and copper action level, before the water system can be placed on reduced monitoring
- Systems sampling annually or less frequently must conduct sampling during the months of June, July, August, or September [40 C.F.R. 141.86(4)iv]
- To return to triennial monitoring, public water systems will need to complete two rounds of 6-month sampling and two years of annual monitoring with 90th percentile results below the action level.

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Monitoring Schedule

- Outline situations and protocols when the water system may collect additional lead and copper samples.
 - If a water system distributes more sample bottles than the required amount, these additional sites must be the highest tier possible.
- Outline protocol for collection of Confirmation Samples
 - If a sample site result is greater than the action level, a confirmation sample may be collected.
- Outline protocol for customer requested samples
 - Samples collected within the monitoring period and meet tier requirement
 - Samples collected outside the monitoring period and/or do not meet tier requirement

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SAMPLING PROTOCOLS

40 C.F.R.141.86(B)

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Customer Participation

- Soliciting Customer Participation
 - Outline the protocol used to reach out to the customers to solicit their participation in the lead and copper sampling event
 - Define how the sample collection is documented for each system

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Sampling Procedure

- Outline sampling procedures for
 - Non-community non-transient systems (schools, offices, etc..)
 - Community systems (homeowners)
- Instructions shall be in accordance with 40 C.F.R.141.86(b) and EPA's Memorandum titled *Clarification of Recommended Tap Sampling Procedures for Purposes of the Lead and Copper Rule*, dated February 29, 2016

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Consumer Notice of Results

- Must provide notice of individual results to the person from which the sample was taken
- Plan shall include the following:
 - Procedure for implementation of distributing the consumer notice
 - Information to be included on the notice
 - Copy of consumer notice
- Reporting certification to the State

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APPROVED METHODS

40 C.F.R. 141.89

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Approved Methods

- The approved analytical methods and reporting requirements are available in a guidance document that is posted on our website.
 - <http://www.nj.gov/dep/watersupply/dwc-lead-public.html>

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INVALIDATION OF LEAD AND COPPER TAP WATER SAMPLES

40 C.F.R.141.86(F)

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Sample Invalidation

- A sample may be invalidated if it meets any of the following conditions:
 - The laboratory establishes that improper sample analysis caused erroneous results
 - The State determines that the sample was taken from a site that did not meet the site selection criteria
 - The sample container was damaged in transit
 - There is substantial reason to believe that the sample was subject to tampering

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Sample Invalidation

- Contact Bureau of Safe Drinking Water to request invalidation
- If the sample is invalidated, it will not count toward determining lead or copper 90th percentile levels
 - Replacement sample must be taken if the system has too few samples to meet the minimum samples required after the invalidation
 - Replacement sample can not be taken longer than 20 days after state invalidates the samples or by the end of the monitoring period
 - Must be in sample location or other sites used for sampling in the monitoring period
 - Must report result to the State

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Sample Invalidation

- The sampling plan shall include the following :
 - Sample invalidation procedures including situations when a sample may be invalidated and how it will be documented
 - Who is responsible for determining a sample invalidation request should be submitted to the Bureau of Safe Drinking Water
 - Procedures for contacting the State
 - Protocols for collecting a replacement sample

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PLAN OF ACTION FOR ACTION LEVEL EXCEEDANCE

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Action Level Exceedance

- The sampling plan shall include the following:
 - Return to Standard Monitoring
 - Notification to NJDEP and bulk purchasers
 - WQP Monitoring (initial, follow-up or optimal)
 - Source water monitoring
 - Public Education (for Lead Action Level only)
 - Implementation of Corrosion Control Treatment Steps
 - Implementation of Source Water Treatment Steps
 - Lead Service Line Replacement

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Questions

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Resources

- EPA: Lead and Copper Rule: A Quick Reference Guide:
 - <http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=60001N8P.txt>
- EPA: Actions You Can Take To Reduce Lead In Drinking Water:
 - <http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=20001R4V.txt>
- EPA: Memo Addressing Lead and Copper Rule Requirements for Optimal Corrosion Control Treatment
 - <http://www.epa.gov/dwreginfo/memo-addressing-lead-and-copper-rule-requirements-optimal-corrosion-control-treatment>
- EPA: Memo Clarifying Recommended Tap Sampling Procedures for Lead and Copper Rule, February 29, 2016
 - <http://www.epa.gov/dwreginfo/memo-clarifying-recommended-tap-sampling-procedures-lead-and-copper-rule>
- EPA: Memo Regarding Implementation of the Lead and Copper Rule Provisions Related to Sample Site Selection and Triennial Monitoring, October 13, 2016
 - <https://www.epa.gov/dwreginfo/implementation-lead-and-copper-rule-provisions-related-sample-site-selection-and-triennial>

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Resources

- Division of Water Supply & Geoscience website:
 - <http://www.nj.gov/dep/watersupply/dwc-lead-public.html>
- Forms required for submittal of a lead and copper sampling plan (BWSE-14, 15, 17, 18) can be accessed through our website
- Lead and Copper Sampling Plan guidance and template

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