LEAD AND COPPER SAMPLING

JEFF BRENNAN – WATER SYSTEM ASSISTANCE

LEAD IN DRINKING WATER REGULATIONS

- Federal Lead and Copper Rule (LCR)
  - Effective 1991 with Revisions in 2000 and 2007
  - NJ has adopted this by reference
- Board of Education (BOE)
  - July 13, 2016
- Department of Children and Families (DCF)
  - March 6, 2017

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LEAD FREE LEGISLATION

- 1986: Congress prohibited the use of pipes, solder or flux that were not lead free
  - "lead free" allowed up to 0.2% lead in solder and flux and 8% lead content of pipes and fixtures
- 2011: Congress passed Reduction of Lead in Drinking Water Act
  - "lead free" lowered to a weighted average of 0.25% of wetted surfaces of all plumbing products
  - Effective January 4, 2014

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EPA LONG-TERM REVISIONS

- EPA is considering Long-Term revisions to improve public health protection by making substantive changes and to streamline the rule requirements.
- Key Principles for LCR Revisions:
  - Focus on Minimizing Exposure to Lead in Drinking Water
  - Clear and Enforceable Requirements
  - Transparency
  - Environmental Justice and Children's Health
  - Integrating Drinking Water with Cross-Media Lead Reduction Efforts

WATER INFRASTRUCTURE IMPROVEMENTS FOR THE NATION (WIIN) ACT – ENACTED DEC. 16, 2016

- EPA strategic plan that establishes procedures for ensuring that communities are provided with:
  - An explanation of potential adverse effects on human health of drinking water that contains a high levels of lead;
  - The steps that the public water system is taking to lower the concentration of lead; and
  - The possible need for home owners to seek an another water source until the lead level can be lowered.
- The notification is <u>not</u> intended for samples collected under the LCR but is required when EPA develops or receives certain data from a source other than a state or public water system, indicating that the drinking water of a household exceeds the action level.

LEAD AND COPPER SAMPLING REQUIREMENTS

Population Served*	Minimum Number of Standard Sites	Minimum Number of Reduced Sites	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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ADDITIONAL LEAD AND COPPER SAMPLING

- Non-compliance lead and copper tap monitoring
  - Samples that are not first draw (e.g. flushed), taken outside of the monitoring period, collected from sites that do not meet Tier requirements.
  - Non-compliance lead and copper sample results must be submitted via the Non-Compliance Pb&Cu Tap Monitoring Form (BWSE-16) and submitted electronically to watersupply@dep.nj.gov
- Customer Requested Samples
  - A system may elect to collect a sample per a customers request/complaint
  - Can be used for compliance if the sample is collected within compliance monitoring period, at the appropriate Tier site, and is first draw.
  - If the customer requested sample does not meet these requirements then it must be submitted as a non-compliance sample

ADDITIONAL LEAD AND COPPER SAMPLING CONT…

- Lead Service Line Sampling
  - Required when a water system conducts a partial lead service line replacement.
  - System is required to take a lead sample (at the systems expense) within 72 hours of completion of the partial lead service line replacement.
- Policy changes for how a systems lead and copper monitoring schedule is determined.
  - NJDEP is no longer putting systems on triennial Pb/Cu monitoring
  - Systems currently on triennial monitoring are grandfathered in for the time being.
  - Systems on the standard 6 month monitoring period will need to have clean LCR compliance to return to annual Pb/Cu monitoring.

SAMPLING TIERS (CWS)

Tier Level	Criteria
Tier 1	Single-Family Structures: • Served by a lead service line; and/or • Containing copper pipes w/ lead solder installed after 1982[1] • and/or Containing lead pipes.
Tier 2	Buildings, including multi-family residences: • Served by a lead service line; and/or • Containing copper pipes with lead solder installed after 1982[1] • and/or Containing lead pipes.
Tier 3	Single family structures that contain copper pipes with lead solder installed before 1983.
Non-Tier	Structures with other plumbing materials.

[1]*Though the effective date for the lead ban in NJ was 1987, there is still a possibility of lead solder being used in construction after this date.*

SAMPLING TIERS (NTNC)

Tier Level	Criteria
Tier 1	Buildings: • 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
Non-Tier	Structures with other plumbing materials

SAMPLE SITE TIER CATEGORY

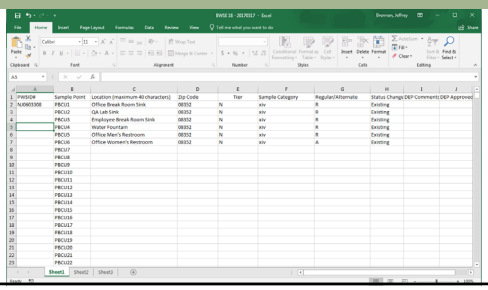
Sample Category	Description	Tier Level	
		CWS	NTNC
i	Single family residence with lead service line	1	NA
ii	Single family residence with lead solder copper piping constructed after 1982*	1	NA
iii	Single family residence with lead plumbing	1	NA
iv	Multi-family residence with lead service line	2	NA
v	Multi-family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

LEAD AND COPPER SAMPLING PLANS

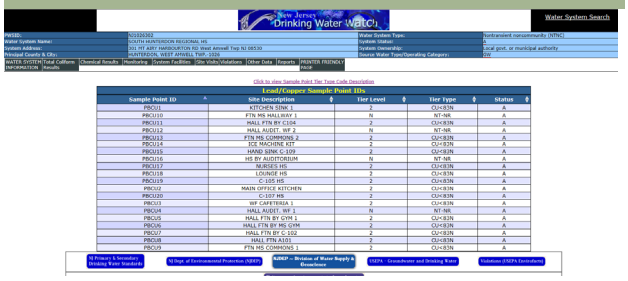
Required for all Community & Non-Transient Non-Community Water Systems

- General Water System Information
- Distribution Map
- Materials Evaluation
- Designation of Sample Sites
- Monitoring Schedule
- Sampling Protocols
- Sample Invalidation Procedures

BWSE-18 FORM



LEAD/COPPER SAMPLE POINT ID



TIER TYPE CODE DESCRIPTION

Tier Type Code Description

Description	Sample Category	Tier Type Code	Tier Level CWS	Tier Level NTNC
Single family residence with lead service line	i	LSLS	1	
Single family residence with lead solder copper piping constructed after 1982	ii	CU>82S	1	
Single family residence with lead plumbing after 1982[a]	iii	PBPS	1	
Multi-family residence with lead service line	iv	LSLM	2 or 1[b]	
Multi-family residence with lead solder copper piping constructed after 1982[a]	v	CU>82M	2 or 1[b]	
Multi-family residence with lead plumbing	vi	PBPM	2 or 1[b]	
Single family home with lead solder copper piping constructed before 1983	vii	CU<83	3	
Single family home that does not meet Tier 1, 2, or 3 criteria	viii	NT-S	N	
Multi-family home that does not meet Tier 1, 2, or 3 criteria	ix	NT-M	N	
Non-residential building with lead service line	x	LSL-NR	2	1
Non-residential building with lead solder copper piping constructed after 1982[a]	xi	CU>82N	2	1
Non-residential building with lead plumbing	xii	PBP-NR	2	1
Non-residential building with lead solder copper piping constructed before 1983	xiii	CU<83N	N	2
Non-residential building that does not meet Tier 1, 2, or 3 criteria	xiv	NT-NR	N	N

[a] *Though the effective date for the lead ban in NJ was 1987, there is still a possibility of lead solder being used in construction after this dat Water systems are advised to carefully consider the Tier level of homes and buildings built during this time.*

[b] *When multiple-family residences constitute at least 20% of the structures served by a water system, the system may include Tier 2 multi-f residence sampling sites in its Tier 1 sampling pool.*

SAMPLE SITE CHANGES

- Sample site changes between monitoring periods must be conducted via submitting a Sample Site Change Form (BSDW – 56) electronically to watersupply@dep.nj.gov
- Change of Tier
  - No additional higher Tier sites available
  - Unable to gain access to higher Tier sites at this time.
- Change of Location
  - Can no longer gain access
  - No longer meets Tier requirements
  - Vacant

LEAD AND COPPER SAMPLING PLAN SAMPLING INSTRUCTIONS

7.b Sampling Instructions
(Sampling instructions/Laboratory sampling procedures are enclosed in Appendix D)

Indicate who collects the lead and copper samples at this system

☐Customer/Resident

☐Licensed Operator/System Personnel

The Licensed Operator/System Personnel is notified of the designated sampling site locations by:

_____

The system ensures the Licensed Operator/System Personnel is adhering to these sampling sites and the 6-hour minimum stagnation time by: _____

☐Certified Lab (NTNCWS only)

Lab Name: Contact Name:
Phone: Email:

Laboratory is notified of the designated sampling site locations by: _____

The system ensures the laboratory is adhering to these sampling sites and the 6-hour minimum stagnation time by:

_____

SAMPLE INSTRUCTIONS

- EPA Memorandum
  - Do not recommend cleaning or removal of aerators
  - Minimum standing time of 6 hours; do not recommend pre-stagnation flushing
  - Wide mouth bottles
- Cold water taps only
  - CWS kitchen or bathroom
  - NTNCWS taps used for human consumption
- Draft instructions available on our website at: http://www.nj.gov/dep/watersupply/doc/lead-copper-sampling.docx

SAMPLE INVALIDATION PROCEDURES

8. Sample Invalidation Procedures

Contact information of the responsible person to determine if request should be made to NJDEP

Name_____ Email_____
Title_____ Phone_____

Criteria for Invalidating a sample

- The laboratory establishes that improper sample analysis caused erroneous results
- The NJDEP 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

Procedure for Contacting the NJDEP

☐Call the Bureau of Safe Drinking Water (609)292-5550
☐Email watersupplyti@dep.nj.gov

Protocol for collecting replacement sample

- We will take the replacement sample as soon as possible but no longer than 20 days after the date the NJDEP invalidates the sample or by the end of the monitoring period, whichever occurs later.
- The replacement sample will be taken at the same location as the invalidated sample or if not possible, at an approved alternate site that was not already sampled for in the monitoring period.
- We will report the results of all replacement samples to the NJDEP via E2 for calculating the 90th percentile.
- Sampling procedures outlined above in 6b will be followed.

WATER QUALITY PARAMETER MONITORING

- Initial: Determine what CCT will be effective
- Follow-up: Verify that the CCT is operating as expected and determine operational levels
- Optimal: Ongoing assessment that CCT is operating correctly

Sampling can be conducted by a NJ certified laboratory or an Approved Person

WQP SAMPLE SITES

System (Pop.)	# of Sites (Routine)	# of Samples	Reduced # Sites
> 100,000	25	50	10
10,001 to 100,000	10	20	7
3,301 to 10,000	3	6	3
501 to 3,300	2	4	2
101 to 500	1	2	1
< 100	1	2	1

WQP SAMPLING

- Must sample from all active EPTDS and interconnections with CCT.
- Sample from designated number of sites within the distribution system based on population.
- REMEMBER: if a system has TPs with and without CCT they will need to have both initial and follow-up WQP Sampling Plans.
- It is important to get WQP sample results to the systems ASAP
  - Initials
  - OWQP

OPTIMAL WQP MONITORING - WQP PARAMETERS & FREQUENCY

Point of Entry

- Every 14 Days
  - pH
  - Alkalinity (if adjusted)
  - Calcium (if adjusted)
  - Orthophosphate (if adjusted)
  - Silica (if adjusted)

Distribution Taps

- Required # of distribution taps is based on population
  - 40 CFR 141.82(a)(2)
- Standard :Twice within 6 months monitoring period
- Reduced # of sites twice within each 6 month monitoring period
- Reduced # of sites twice within Annual or Triennial period
- The analytes:
  - pH
  - Alkalinity (if adjusted)
  - Calcium (if adjusted)
  - Orthophosphate (if adjusted)
  - Silica (if adjusted)

WQP EXCURSIONS

- Only for systems on Optimal Water Quality Parameter monitoring.
- Incurred when any daily value for a parameter is below the minimum value set by NJDEP.
- Action Plan
  - Outline steps to confirm, inspect, and adjust treatment units as necessary.
  - Collect WQPs IMMEDIATELY following an excursion.

TREATMENT TECHNIQUE VIOLATION – TYPE 59

- Only for systems on Optimal WQP monitoring.
- Incurred when excursions occur on more than nine days within a 6 month monitoring period.
- Action Plan
  - The system must:
    - Report the violation to the NJDEP within 48 hours of determining the noncompliance.
    - Deliver a Tier 2 public notification to the customers within 30 days.
    - Submit copy of the Tier 2 Public Notice and a Public Notice Certification Form to the NJDEP within 10 days of completing the public notice.
    - Include a discussion of the violation in the system's CCR (if applicable)
    - Provide NJDEP with a report outlining the source of the Treatment Technique and steps taken toward remediation.
    - RETURN to standard WQP monitoring and Lead and Copper tap monitoring (every 6 months at the standard # of sites)

RESOURCES

- DEP:
  - https://www.nj.gov/dep/watersupply/dwc-lead-consumer.html
  - https://www.nj.gov/dep/watersupply/dwc_systems.html
- EPA:
  - https://www.epa.gov/lead
- Lead Free Legislation:
  - https://www.epa.gov/dwstandardsregulations/section-1417-safe-drinking-water-act-prohibition-use-lead-pipes-solder-and