

**LEAD AND COPPER**

**A WORKING GUIDE TO THE**

**LEAD AND COPPER RULE**

**394-0300-003**



**pennsylvania**

DEPARTMENT OF ENVIRONMENTAL  
PROTECTION  
BUREAU OF SAFE DRINKING WATER

**DEPARTMENT OF ENVIRONMENTAL PROTECTION**  
**Bureau of Safe Drinking Water**

**DOCUMENT NUMBER:** 394-0300-003

**TITLE:** Lead and Copper - A Working Guide to the Lead and Copper Rule

**EFFECTIVE DATE:** Upon publication of notice as final in the *Pennsylvania Bulletin*

**AUTHORITY:** Pennsylvania Safe Drinking Water Act (35 P.S. § 721.1 *et seq.*) and  
25 Pa. Code Chapter 109

**POLICY:**

**PURPOSE:**

**APPLICABILITY:**

**DISCLAIMER:** The policies and procedures outlined in this guidance are intended to supplement existing requirements. Nothing in the policies or procedures shall affect regulatory requirements.

The policies and procedures herein are not an adjudication or a regulation, and DEP has no intent to give this document that weight or deference. This document establishes the framework within which DEP will exercise its administrative discretion in the future. DEP has the discretion to deviate from this policy statement if circumstances warrant.

**PAGE LENGTH:** 60 pages

**DEFINITIONS:**

## TABLE OF CONTENTS

1.	Summary .....	1
	A. Overview of the Lead and Copper Rule .....	1
	B. Health Effects and Sources of Lead and Copper .....	2
2.	Planning and Initial Monitoring.....	4
	A. Materials Evaluation .....	5
	B. Lead and Copper Tap Sample Site Selection.....	5
	C. Sample Site Location Plan .....	9
	D. Initial Lead and Copper Tap Monitoring .....	10
	E. Initial Lead and Copper Source Water Monitoring .....	10
	F. Initial Water Quality Parameter Monitoring.....	11
	G. Water Sample Collection Protocol.....	12
3.	Special Monitoring.....	14
	A. Special Monitoring Requirements .....	15
4.	Public Education .....	16
	A. Consumer Tap Notice .....	17
	B. Public Education .....	17
	C. Certification Letter.....	22
	D. Discontinuation of Public Education Program .....	23
	E. Notification of Customer Monitoring .....	23
5.	CCT Compliance Schedule .....	24
	A. Optimal Corrosion Control Treatment.....	25
	B. Compliance Milestones for Existing Large Systems .....	26
	C. Compliance Milestones for Systems Requiring CCT .....	26
	D. CCT Feasibility Study.....	27
	E. Permit Requirements.....	28
6.	Follow-Up Monitoring.....	30
	A. Lead and Copper Tap Monitoring.....	31
	B. Water Quality Parameter Monitoring .....	31
	C. Source Water Monitoring .....	32
7.	Lead Service Line Replacement .....	33
	A. Lead Service Line Replacement Requirements .....	34
	B. Resumption of Lead Service Line Replacement.....	35
	C. Reporting Requirements .....	35
8.	OCCT Performance Requirements .....	37
	A. OCCT Performance Requirements .....	38
	B. WQP Performance Requirements .....	38
	C. Source Water Treatment Performance Requirements.....	39
	D. Monitoring After Performance Requirements Established.....	39
	E. Determining Compliance with Performance Requirements .....	40
9.	Reduced Monitoring .....	42
	A. Lead and Copper Tap Water Monitoring.....	43
	B. Water Quality Parameter Monitoring .....	47

10.	Public Notification .....	48
	A.    Public Notification Requirements.....	49
11.	System Management Responsibilities .....	50
	A.    Reporting and Recordkeeping.....	50
	B.    Operation and Maintenance (O&M) Plan.....	51
	C.    Operator Certification .....	52
	D.    LSL Replacement.....	52

Deliberative Draft

## PREFACE

### GUIDE DESCRIPTION

A *Working Guide to the Lead and Copper Rule* is a comprehensive guide designed to provide necessary, useful information to public water suppliers concerning the Lead and Copper Rule. The guide summarizes some regulatory requirements and elaborates or paraphrases others. Refer to 25 Pa. Code Chapter 109, Subchapter K: Regulation of Lead and Copper for precise regulatory language.

The following is a brief synopsis of the sections found in this guide:

#### **Section 1 - Summary**

Offers an overview of the regulatory requirements and the rationale for control of lead and copper in drinking water.

#### **Section 2 - Planning and Initial Monitoring**

Details the LCR planning requirements, including the materials evaluation and sample site location plan, and the initial monitoring requirements for lead and copper and water quality parameters (WQPs).

#### **Section 3 - Special Monitoring**

Discusses special monitoring as an option for small and medium systems following initial monitoring and prior to initiation of construction or modification of corrosion control treatment facilities.

#### **Section 4 - Public Education**

Explains the lead consumer tap notice and public education requirements related to a lead action level exceedance.

#### **Section 5 – Corrosion Control Treatment (CCT) Compliance Schedule**

Outlines the compliance schedule including a time table for installation of corrosion control treatment as well as feasibility study and permit requirements.

#### **Section 6 - Follow-up Monitoring**

Describes the requirements for follow-up monitoring conducted after completion of construction or modification of corrosion control treatment facilities.

#### **Section 7 - Lead Service Line (LSL) Replacement**

Details the requirements for LSL replacement for systems continuing to exceed the lead action level following installation of corrosion control treatment.

## **Section 8 - OCCT Performance Requirements**

Explains the water quality performance requirements for systems installing corrosion control treatment. Systems are required to operate this treatment within specified performance standards that are approved and designated by the department. Includes the requirements for systems conducting monitoring following performance requirements.

## **Section 9 - Reduced Monitoring**

Outlines the requirements for reduced monitoring for lead and copper and water quality parameters.

## **Section 10 - Public Notification**

Describes the public notification requirements triggered by violations of the Lead and Copper Rule.

## **Section 11 - System Management Responsibilities**

Explains the system management responsibilities for reporting and recordkeeping, an operation and maintenance plan, and operator certification and training.

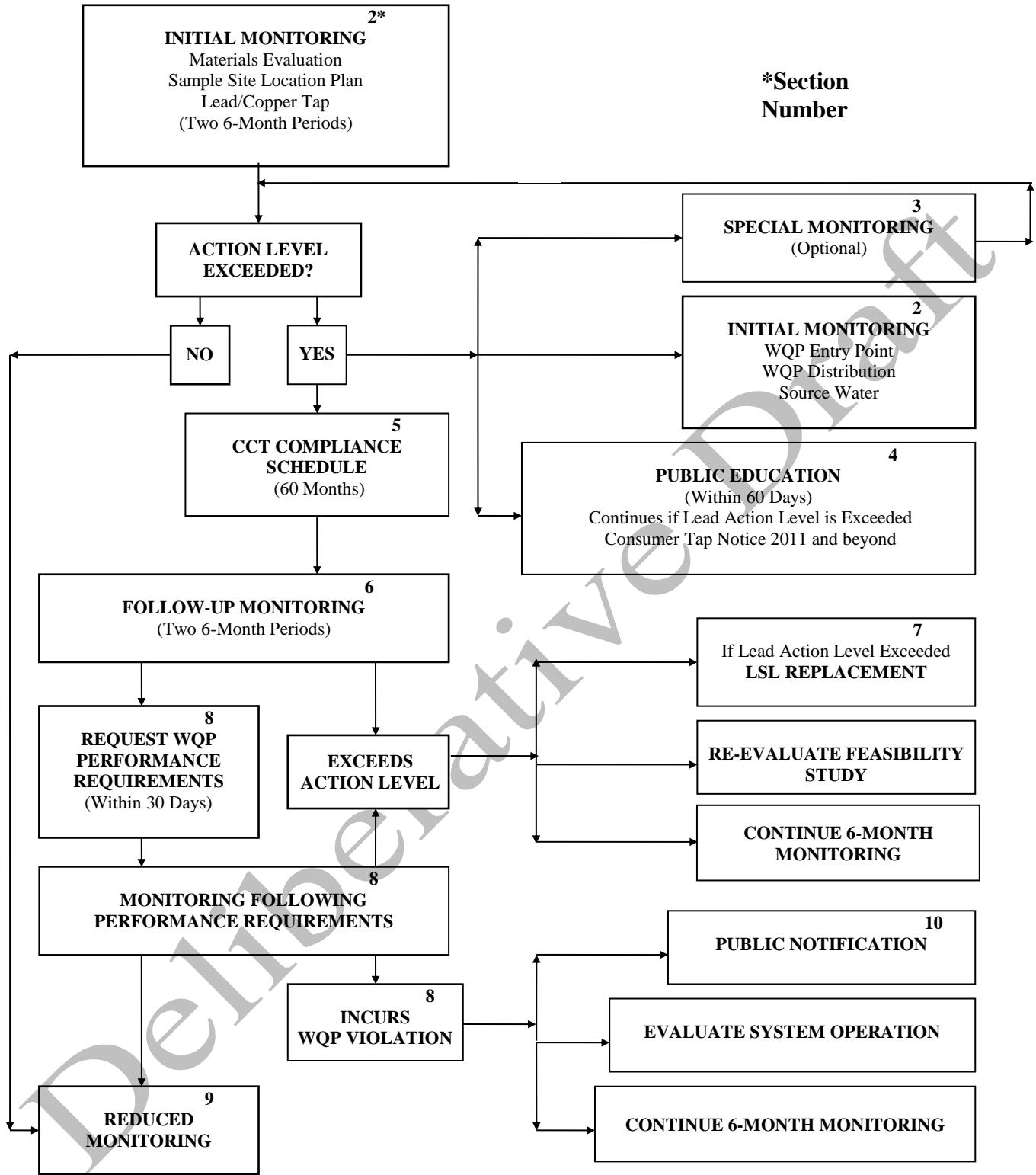
**The small and medium water systems flow chart (page vi) serves as a roadmap for this guide.** The first page of each section contains a flow chart highlighted to indicate the section topic. The large water systems flow chart (page vii) is provided in the preface and serves as a reference tool for large systems. The large system chart includes the same section numbers as those found in the small and medium water systems flow chart.

## **RESOURCES**

EPA Lead and Copper Rule: <https://www.epa.gov/dwreginfo/lead-and-copper-rule>

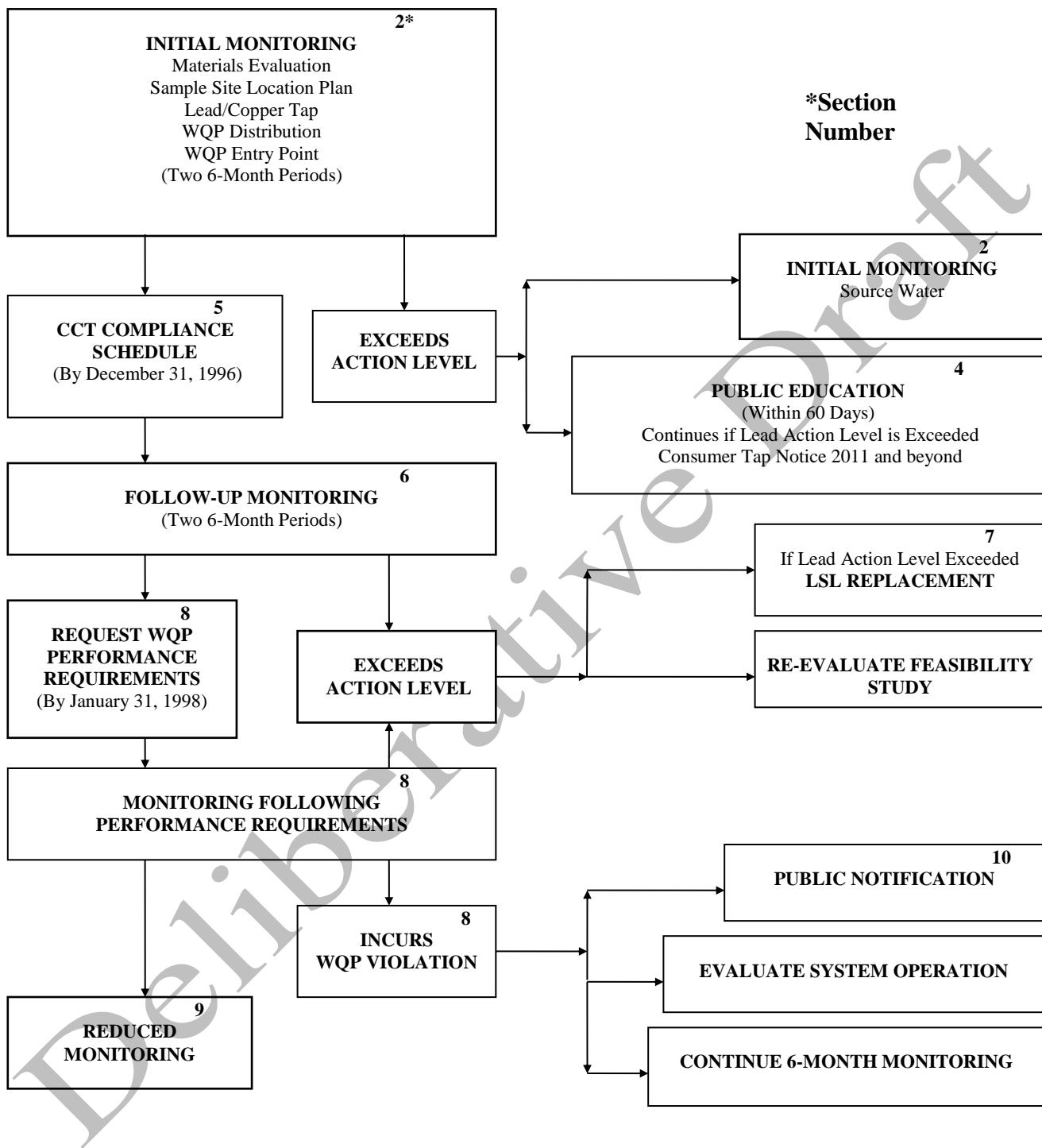
DEP Lead and Copper Rule: [www.dep.pa.gov/lead\\_copper\\_rule](http://www.dep.pa.gov/lead_copper_rule)

## **SMALL AND MEDIUM WATER SYSTEMS**



**NOTE:** Small and medium systems can qualify for reduced monitoring at any time by not exceeding the lead and copper action levels during two consecutive six-month monitoring periods.

## LARGE WATER SYSTEMS



**NOTE:** The Large Systems flow chart is provided as a reference. The flow chart at the beginning of each section is the Small and Medium Systems flow chart. Section references are the same for both flow charts.

## Section 1 - Summary

### 1. SUMMARY

#### A. OVERVIEW OF THE LEAD AND COPPER RULE

On June 7, 1991, the U.S. Environmental Protection Agency (EPA) issued its final Lead and Copper Rule (LCR). On January 12, 2000, EPA made several revisions to the LCR to improve implementation. On Oct 10, 2007, EPA issued short-term revisions to the LCR in the areas of monitoring, treatment, customer awareness and lead service line replacement. The update also enhanced public education requirements and ensured consumers received timely and useful information. EPA is currently working on long-term revisions to the LCR. Promulgation of the state's Lead and Copper Rule was necessary to comply with the provisions of the Pennsylvania Safe Drinking Water Act. State regulations at least as stringent as the federal rule were necessary for Pennsylvania to maintain primary enforcement responsibility (primacy) under the federal Safe Drinking Water Act.

The state's Lead and Copper Rule became effective December 24, 1994. The minor revisions to this rule became effective August 10, 2002 and the short-term revisions became effective on December 10, 2010. This document also includes EPA's 2016 revised lead and copper tap sample collection procedures.

This rule applies to all community and nontransient noncommunity water systems and classifies systems based on the population they serve.

SYSTEM	POPULATION
Large	>50,000
Medium	3,301 to 50,000
Small	<3,301

The primary objective of this rule is to control lead and copper levels in public drinking water systems through a treatment technique for corrosion control.

The rule establishes a lead action level of **0.015 mg/L** and a copper action level of **1.3 mg/L**. An action level is not an MCL. It represents a level at which the system must take additional action under its control to reduce lead or copper levels and inform consumers about the actions they can take to lower exposure to lead in drinking water.

CONTAMINANT	ACTION LEVEL (mg/L)*
Lead	0.015
Copper	1.3

\*Measured in 90th percentile at taps

The rule establishes a treatment technique that includes requirements for:

- **Corrosion control treatment (CCT),**
- **Lead service line (LSL) replacement, and**
- **Public education (PE).**

## Section 1 - Summary

Treatment technique requirements are triggered by exceedances of an action level as measured in the 90th percentile at the consumers' taps. An action level is exceeded when the concentration of the contaminant in more than 10 percent of tap water samples is greater than the action level.

The comprehensive monitoring requirements of this rule identify the contributions of different sources of lead and copper corrosion by-products to drinking water and enable a water system to determine the lead and copper concentrations to which its customers may be exposed.

Systems exceeding either the lead or copper action level are required to install optimal corrosion control treatment (OCCT), source water treatment or both. OCCT is defined as follows:

OCCT minimizes the lead and copper concentrations at users' taps while ensuring that the treatment does not cause the system to violate any primary maximum contaminant level.

A system may achieve OCCT in one of the following ways:

1. Small and medium systems can achieve OCCT by not exceeding either action level for lead and copper tap monitoring during two consecutive six-month monitoring periods.
2. Any system can achieve OCCT if, during two consecutive six-month monitoring periods, its lead and copper tap monitoring results do not exceed the action levels at the 90th percentile and the difference between the 90th percentile lead level and the highest source water lead concentration is less than 0.005 mg/L.
3. Any system can achieve OCCT when the system installs new CCT facilities or modifies existing treatment and operates in compliance with the WQP performance standards specified for that system by the department.

After treatment, if lead levels are still too high, systems are required to replace LSLs. Systems that exceed the lead action level are required to implement a PE program about the effects of lead in drinking water.

### **B. HEALTH EFFECTS AND SOURCES OF LEAD AND COPPER**

The severity of lead contamination depends on the amount of lead in the distribution system and home plumbing and on the corrosiveness of the water. The highest lead levels occur in the first-draw tap water after several hours of water stagnation in pipes and plumbing materials. Nearly all public water systems in Pennsylvania contain some type of leaded plumbing materials either in the distribution system or in homes or other buildings. An EPA study conducted in the mid-1980s indicated that 85 percent of

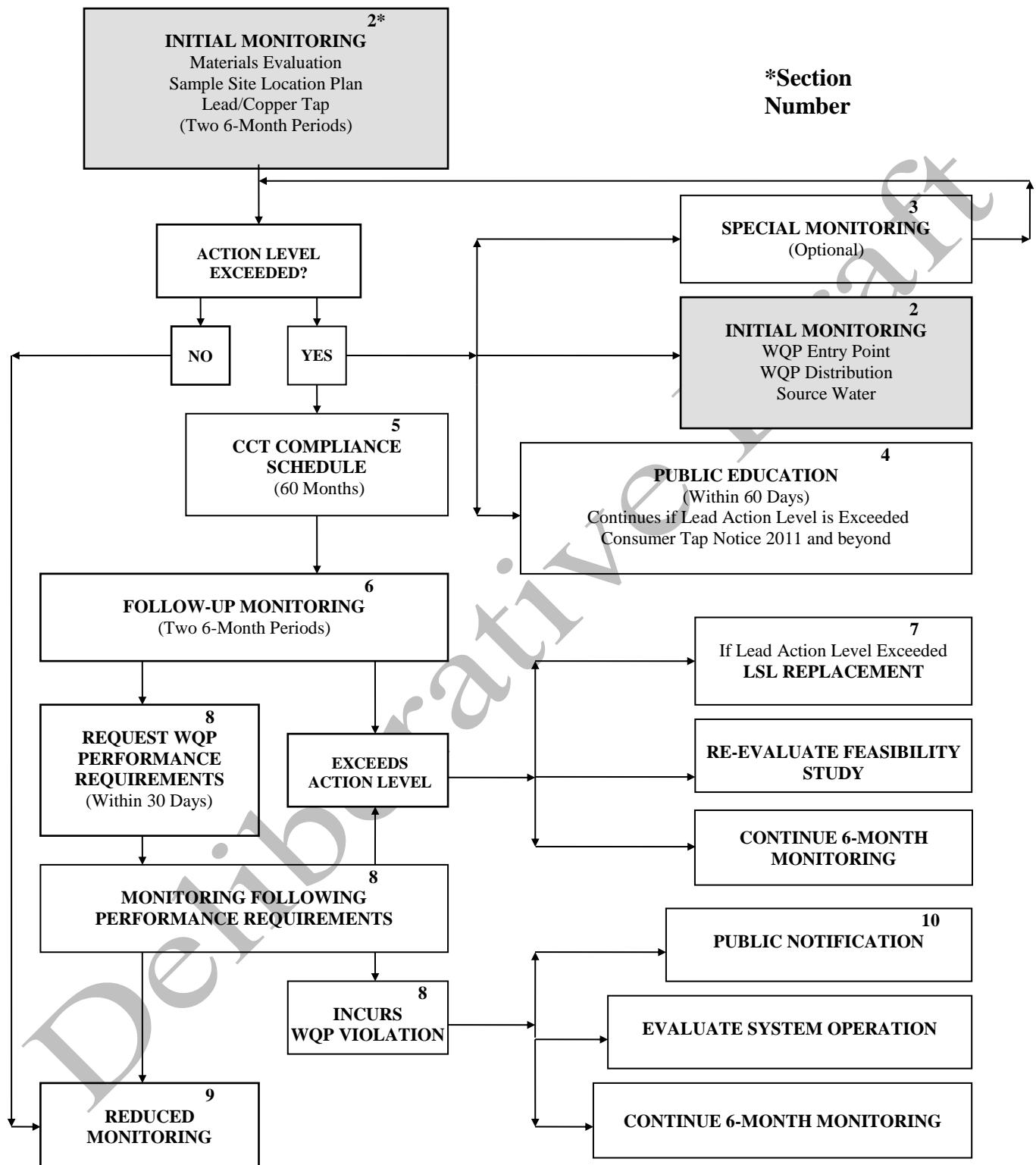
## Section 1 - Summary

Pennsylvania's community water systems have corrosive water, with the water in 35 percent of the systems being highly corrosive. The EPA estimates that lead in drinking water contributes between 10 to 20 percent of total lead exposure in young children.

Contaminant	Health Effects	Lead and Copper Contamination Sources
<b>Lead</b>	<p><i>Children:</i></p> <p>Altered physical and mental development; interference with growth; deficits in IQ, attention span, and hearing; interference with heme synthesis.</p> <p><i>Women:</i></p> <p>Increased blood pressure; shorter gestational period; kidney damage.</p> <p><i>Men:</i></p> <p>Increased blood pressure; kidney damage.</p>	<p><i>Corrosion of:</i></p> <ol style="list-style-type: none"><li>1. Lead solder and brass fixtures.</li><li>2. Lead service lines (20% of public water systems.)</li></ol> <p><i>Source Water:</i> (1% of public water systems.)</p>
<b>Copper</b>	Stomach and intestinal distress in persons with Wilson's disease.	<p><i>Corrosion of:</i></p> <p>Interior household and building pipes.</p>

## Section 2 - Planning and Initial Monitoring

### 2. PLANNING AND INITIAL MONITORING



**NOTE:** Small and medium systems can qualify for reduced monitoring at any time by not exceeding the lead and copper action levels during two consecutive six-month monitoring periods.

## Section 2 - Planning and Initial Monitoring

### A. MATERIALS EVALUATION

All community and nontransient noncommunity water systems shall review all records documenting the materials used to construct and repair their distribution system piping. Additionally, systems should review the interior plumbing materials used within residences and buildings connected to their distribution system. Sources of information include:

- Plumbing codes, permits and records in the files of the **building departments** of each municipality served by the system;
- Water system records including:
  - Distribution maps and drawings;
  - Inspection and maintenance records;
  - Meter installation records;
  - Standard operating procedures;
  - Operation and maintenance manuals;
  - Permit files;
  - Existing water quality data;
- Interviews with senior personnel, building inspectors, and retirees; and
- Community survey.

DEP has created “*Instruction Packet for Lead and Copper Tap Sample Site Location Plan*” (3900-FM-BSDW0549) that contains the worksheets and templates to complete the materials evaluation and sample site location plan.

Here’s the link to the LCR Web page that features this packet:  
[www.dep.pa.gov/lead\\_copper\\_rule](http://www.dep.pa.gov/lead_copper_rule).

### B. LEAD AND COPPER TAP SAMPLE SITE SELECTION

The Lead and Copper Rule requires all community and nontransient noncommunity water systems to collect tap water samples to determine lead and copper levels to which customers may be exposed. Tap water samples must be collected from sampling locations that meet the following criteria.

### ***Community Water Systems***

**For community water systems**, lead and copper tap water samples must be collected from sampling locations that meet one of the following criteria:

**Tier 1.** Single family structures that:

- contain lead pipes; or
- are served by lead service lines; or
- contain copper pipes with lead solder that were **installed after 1982**.

**Tier 2.** Buildings and multiple-family residences that:

- contain lead pipes; or
- are served by lead service lines; or
- contain copper pipes with lead solder that were **installed after 1982**.

**Tier 3.** Structures that were constructed as a single-family residence and currently used as either a residence or business, that:

- contain copper pipes with lead solder **installed before 1983**.

#### **Lead and Copper Tap Sample Pool Criteria**

- Community water systems should identify more sampling sites than the required number during each monitoring period in case volunteers drop out of the sampling pool. Community water systems **shall select Tier 1 sample site locations**. If the initial materials evaluation did not include the **entire distribution system**, the water system may need to do additional research to maintain a sufficient pool of Tier 1 locations.
- **Water systems are not required to target structures with lead solder installed after January 6, 1991**; which is the effective date of the Pennsylvania Plumbing System Lead Ban and Notification Act.
- **If a water system contains lead service lines, at least 50 percent of the sampling sites included in the sampling pool should be served by a lead service line. When enough lead service line sites do not exist, a water system must collect a tap water sample from each site served by a lead service line.**
- If a water system has no lead service lines, but it does have lead goosenecks or pigtails, the system should collect tap water samples at the sites with the goosenecks and/or pigtails.
- When enough tier 1 sites do not exist, the water system must complete its sampling pool with tier 2 sites.
- When enough tier 1 and 2 sites do not exist, the water system must complete its sampling pool with tier 3 sites.

## Section 2 - Planning and Initial Monitoring

- **The use of non-tier 1 sites should be well documented and justified.** An incomplete materials evaluation is not a sufficient justification.
- When enough tier 1, 2 and 3 sites do not exist, the water system shall sample from other representative sites throughout the distribution system in which the plumbing materials used at the site would be commonly found at other sites served by the system. **The use of “other” sample sites should be well documented and justified.**
- If a community water system operates 24 hours a day (such as a prison or nursing home) and does not have enough taps that supply first-draw lead and copper samples, the water supplier may apply to DEP, in writing, to substitute non-first draw samples with samples from drinking water taps that would likely result in the longest standing time. In the request, the supplier needs to identify sampling times and locations of those non-first draw sites.

**NOTE:** Suppliers shall collect as many first-draw samples from appropriate taps as possible before supplementing with non-first draw sites.

- Community water systems that contain a fewer number of buildings than the required number of sampling sites, may sample from different taps within a representative number of buildings.

**NOTE:** Samples shall be taken on different days from taps most commonly used to provide drinking water.

- If a water supplier collects additional lead and copper tap samples, these sites must be the highest tier sites possible. The supplier cannot dilute the 90th percentile value with lower tier sample sites.
- If multiple-family residences comprise at least 20 percent of the structures served by a water system, the system may consider a representative number of these structures as tier 1 sites in its sampling pool.
- If a water system contains only plastic plumbing, but the faucets and fittings contain lead, the system should collect tap samples at single family structures with such faucets and fittings.
- Samples may not be taken from taps that have point-of-use or point-of-entry treatment devices designed to remove inorganic contaminants.

***Nontransient Noncommunity Water Systems***

**For nontransient noncommunity water systems**, lead and copper tap water samples must be collected from sampling locations that meet the following criteria:

**Tier 1.** Buildings that:

- contain lead pipes; or
- are served by lead service lines; or
- contain copper pipes with lead solder that were **installed after 1982**.

**Non-Tier:**

**Other.** Sites that:

- contain copper pipes with lead solder **installed before 1983**.

**Additional.** Sites that:

- contain plumbing materials that are commonly found at other locations within the system.

- **Sampling pools shall consist of tier 1 sites.**
- A system that has an insufficient number of tier 1 sampling sites shall complete its sampling pool with sampling sites that contain copper pipes with lead solder installed before 1983.
- If additional sites are needed, the system shall use representative sites throughout the distribution system in which the plumbing materials used at the site would be commonly found at other sites served by the system.
- **Nontransient noncommunity water systems are not required to target buildings with lead solder installed after January 6, 1991;** effective date of the Pennsylvania Plumbing System Lead Ban and Notification Act.
- If the water system contains fewer buildings than the required number of sampling sites, samples may be collected from different taps within a representative number of buildings. The taps should be those most commonly used for drinking and the samples should be taken on different days. If the system has an insufficient number of these taps to take each sample from a different tap, the system may sample from the same tap on different days.
- If a nontransient noncommunity water system operates 24 hours a day (such as a hospital or factory) and does not have enough taps that supply first-draw lead and copper samples, the water supplier may apply to DEP, in writing, to substitute non-first draw samples with samples from drinking water taps that would likely result in the longest standing time. In the request, the supplier needs to identify sampling times and locations of those non-first draw sites.

## Section 2 - Planning and Initial Monitoring

**NOTE:** Suppliers shall collect as many first-draw samples from appropriate taps as possible before supplementing with non-first draw sites.

- If the water system contains only plastic plumbing, but the faucets and fittings contain lead, the system should collect tap samples at taps with such faucets and fittings.
- Samples may not be taken from taps that have point-of-use or point-of-entry treatment devices designed to remove inorganic contaminants. When water softeners are installed as central treatment, lead and copper tap samples should be taken after treatment.

### C. SAMPLE SITE LOCATION PLAN

All community and nontransient noncommunity water systems shall complete a sample site location plan (SSLSP) prior to initiation of lead and copper sample collection. The plan shall include:

- Materials evaluation of distribution system,
- Lead and copper tap sample site locations,
- Water quality parameter sample site locations, and
- Certification that proper sampling procedures are used.

Systems shall submit a copy to the local DEP district office prior to conducting initial monitoring and shall keep the sample site location plan on file. If the system is required to prepare a corrosion control treatment feasibility study, the system shall include the plan as part of the study.

Water suppliers are responsible for updating their plan within the first 10 days following the end of each applicable monitoring period as follows:

- Identify lead and copper tap sample sites that are different from sites sampled during previous monitoring periods.
- Identify any changes to water quality parameter sample sites from sites sampled during previous monitoring periods.
- Update the sample procedure certification.

DEP has created “*Instruction Packet for Lead and Copper Tap Sample Site Location Plan*” (3900-FM-BSDW0549) that contains the worksheets and templates to complete the materials evaluation and sample site location plan.

Here’s the link to the LCR Web page that features this packet:  
[www.dep.pa.gov/lead\\_copper\\_rule](http://www.dep.pa.gov/lead_copper_rule).

## D. INITIAL LEAD AND COPPER TAP MONITORING

**Initial lead and copper tap monitoring for community and nontransient noncommunity water systems consists of two consecutive six-month periods.** Monitoring periods begin in January and July and end in June and December.

**The first six-month monitoring period for any new water system** created after December 24, 1994 shall begin with the next six-month monitoring period following the issuance of an operations permit or following the system's provision of water to enough sampling sites for the water supplier to comply with sample site requirements, whichever period is later.

Large water systems shall monitor during two consecutive six-month periods and shall comply with the corrosion control treatment (CCT) compliance schedule (Section 5).

Small or medium water systems shall monitor during each six-month monitoring period until one of the following occurs:

1. The system exceeds either the lead or copper action level and is therefore, required to comply with the CCT compliance schedule (Section 5) and may choose to begin special monitoring.
2. The system meets both the lead and copper action levels during two consecutive six-month monitoring periods, in which case the system qualifies for reduced monitoring (Section 9).

All public water systems are required to collect one sample for lead and copper analysis from the following number of sites during each six-month monitoring period.

SYSTEM SIZE (POPULATION)	NUMBER OF LEAD AND COPPER TAP SAMPLING SITES
>100,000	100
10,001 to 100,000	60
3,301 to 10,000	40
501 to 3,300	20
101 to 500	10
≤100	5

## E. INITIAL LEAD AND COPPER SOURCE WATER MONITORING

A system which exceeds either the lead or copper action levels shall collect **one source water sample from each entry point within six months of the end of the monitoring period in which the action level was exceeded.** Monitoring is required only for the parameter for which the action level was exceeded.

## F. INITIAL WATER QUALITY PARAMETER MONITORING

In addition to lead and copper, all large water systems and those small and medium-size systems that exceed the lead or copper action level, will be required to monitor for the following water quality parameters (WQPs) within the same six-month monitoring period:

- **pH;**
- **Alkalinity;**
- **Calcium;**
- **Conductivity;**
- **Water temperature; and**
- **Orthophosphate, when an inhibitor containing a phosphate compound is used; or**
- **Silica, when an inhibitor containing a silicate compound is used.**

These parameters are used to identify optimal treatment and, once treatment is installed, to determine whether a system remains in compliance with the rule. Systems shall monitor WQPs at two separate locations:

- **Representative taps throughout the distribution system, and**
- **Entry points to the distribution system.**

A system shall collect **two sets** of WQP distribution samples from the following number of sample sites. The sample sites shall be representative of water quality throughout the distribution system considering the different sources of water, the different treatment methods, and seasonal variability. The sets of samples shall be collected from the same sample sites on different days and analyzed for the applicable WQPs.

<b>SYSTEM SIZE (POPULATION)</b>	<b>NUMBER OF WQP DISTRIBUTION SAMPLING SITES</b>
>100,000	25
10,001 to 100,000	10
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
≤100	1

**A system shall also collect two sets of WQP samples at each entry point.** The sets of samples shall be collected on different days and analyzed for the applicable WQPs.

## G. WATER SAMPLE COLLECTION PROTOCOL

### *Lead and Copper Tap Samples*

- 1 liter sample size; recommend use of wide mouth bottles
- **First-draw after six hour standing time. Do not intentionally flush the water line before the start of the six-hour period;**
- Cold water kitchen or bathroom tap OR interior tap used for consumption. **Do not remove the aerator prior to sampling, open the cold water tap as you would do to fill a glass of water;**
- Collected by the water supplier or residents (residents must be instructed of proper sampling procedures);
- If residents perform sampling, the supplier may not challenge the accuracy of sampling results, based on alleged errors in sample collection;
- Samples can be acidified up to 14 days after the sample is collected. After acidification, the sample shall stand in the original container for the time specified per the approved EPA method before analyzing the sample;
- For subsequent monitoring, the system shall make reasonable efforts to collect each first-draw tap sample from the same sampling site from which it collected a previous sample. If the supplier is unable to use an original sampling site, the supplier may collect the tap sample from another sampling site in its sampling pool if the **new site meets same targeting criteria**, and is within reasonable proximity to the original site; and
- **Collect early in monitoring period to allow time for collection of water quality parameter samples during same period if necessary.**

The department will only consider lead and copper sample results analyzed by a certified laboratory.

### *Water Quality Parameter Samples*

- Remove faucet aerator and fully flush the line;
- If collecting water quality parameter samples from the same location as coliform and disinfectant residual samples, collect coliform samples first; then measure disinfectant residual, temperature and pH; and finally collect samples for other water quality parameters;

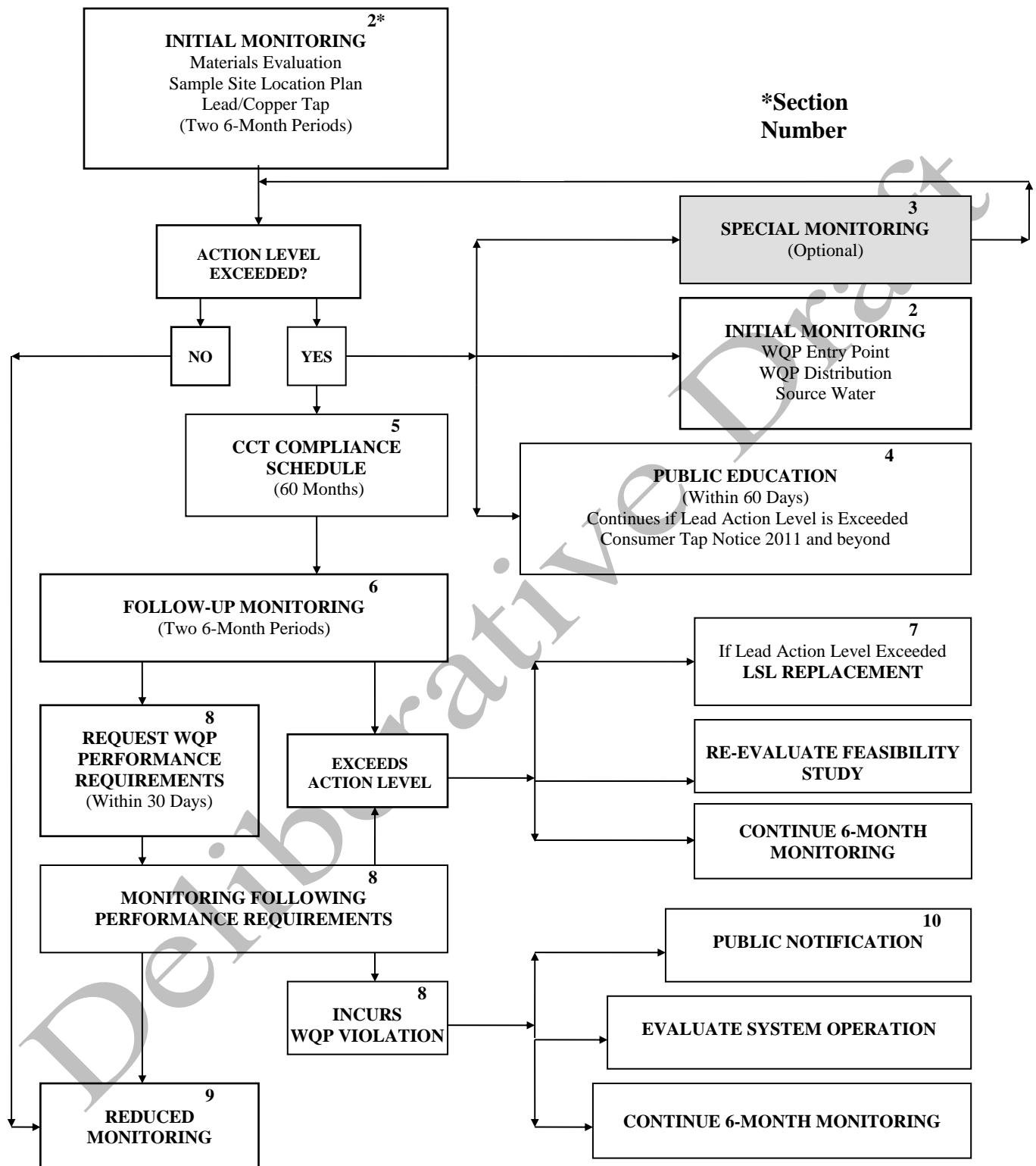
## Section 2 - Planning and Initial Monitoring

- Collect samples in two 500 ml plastic or glass containers (plastic container must be used for silica);
- Measure temperature in the field;
- Measure pH in the field within 15 minutes of sample collection with a calibrated meter capable of measuring to 1/10 of a unit;
- Avoid agitating the water sample;
- Record observations about color, suspended solids, and flushing time required prior to sample collection;
- Store samples in a cool environment until analyzed;
- The two sets of water quality parameter samples should be collected at different times in the monitoring period to ensure data is representative of seasonal changes.

Measurements for water quality parameters may be performed by a certified laboratory or by a person meeting the operator certification requirements. Proper analytical methods shall be used.

## Section 3 - Special Monitoring

### 3. SPECIAL MONITORING



**NOTE:** Small and medium systems can qualify for reduced monitoring at any time by not exceeding the lead and copper action levels during two consecutive six-month monitoring periods.

## A. SPECIAL MONITORING REQUIREMENTS

After completing initial monitoring and prior to initiation of construction or modification of corrosion control treatment facilities, **a small or medium system** may collect special lead and copper tap samples at its option.

**NOTE: Special monitoring must begin the next 6-month monitoring period, not during the same monitoring period in which the action level is exceeded. For systems on an annual or triennial monitoring frequency, the next 6-month monitoring period begins in January of the next calendar year.**

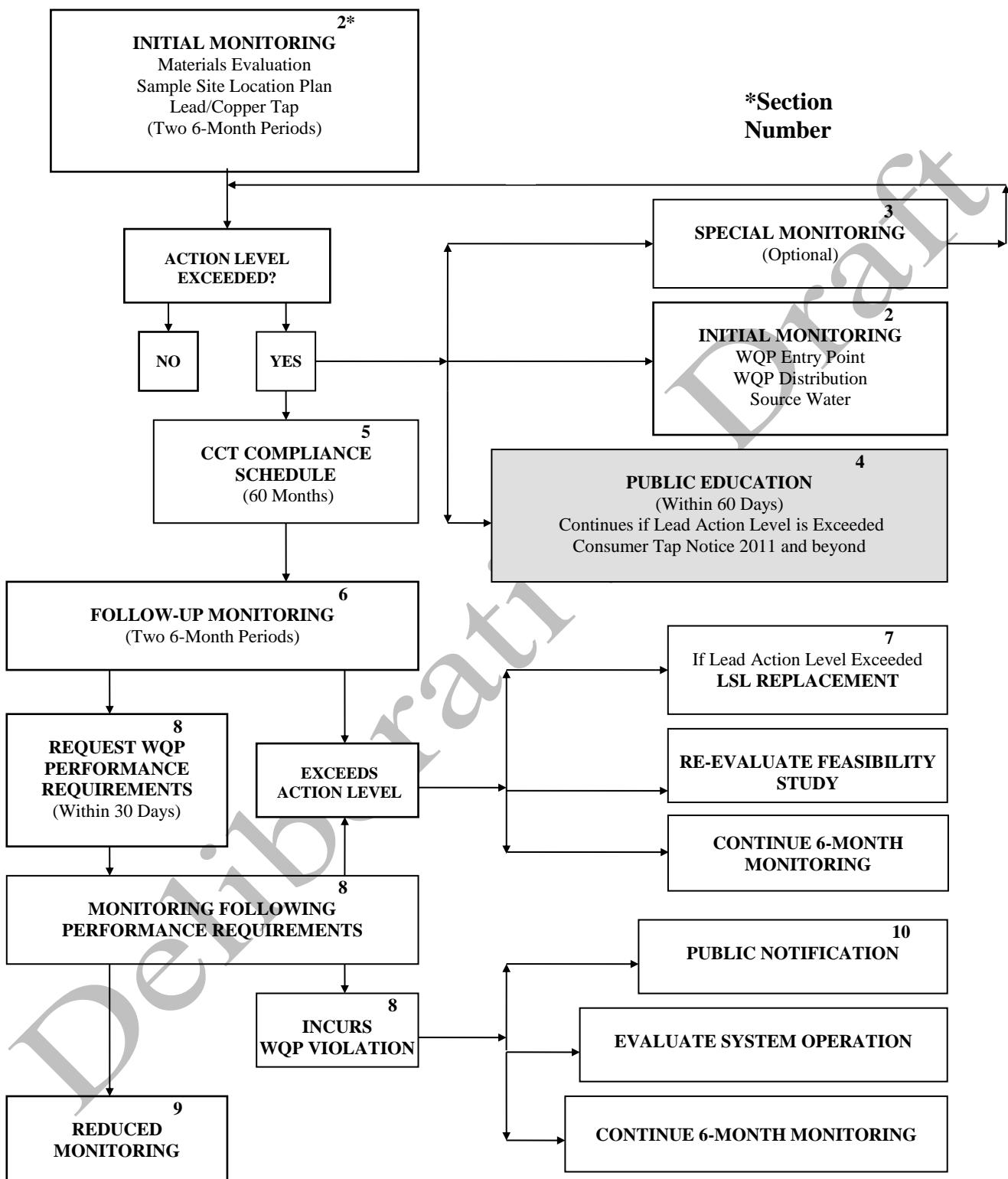
Special lead and copper tap monitoring includes sampling at the same number of sites as initial lead and copper tap monitoring.

If a medium or small water system meets the lead and copper action levels during two consecutive six-month special monitoring periods, the system is deemed to have optimized corrosion control and may discontinue the compliance activities and proceed directly to reduced monitoring (Section 9). If a system meets the lead action level during a special monitoring period, the system may discontinue public education.

If a medium or small water system exceeds an action level during any monitoring period after discontinuing compliance activities, the system must resume completion of the applicable compliance activities. The department may require a system to repeat compliance activities previously completed or undertake additional activities where the department determines that such action is necessary to properly comply with corrosion control treatment requirements.

## Section 4 - Public Education

### 4. PUBLIC EDUCATION



**NOTE:** Small and medium systems can qualify for reduced monitoring at any time by not exceeding the lead and copper action levels during two consecutive six-month monitoring periods.

## A. CONSUMER TAP NOTICE

As a result of the short-term revisions that became effective on December 18, 2010, within 30 days of learning the results, **all systems must deliver a consumer tap notice of the lead tap water results (regardless of the 90th percentile result)** to persons served by the water at sites that are sampled under §109.1103. The consumer tap notice shall be delivered by mail or another method approved by DEP. The water system shall provide notice to consumers who do not receive water bills.

The consumer tap notice must include:

- 1) Results of lead tap water monitoring for the tap that was sampled.
- 2) Lead health effects language.
- 3) List of steps consumers can take to reduce exposure to lead in drinking water.
- 4) Water system contact information.
- 5) Action Level and Maximum Contaminant Level Goal definitions.

Within 3 months of the end of the monitoring period in which lead tap monitoring was conducted, a water supplier must submit a sample copy of the consumer notice along with a certification form that the notices were distributed by mail or by another method approved by DEP.

Templates for the consumer tap notice and the certification form are available on the LCR webpage:

[www.dep.pa.gov/lead\\_copper\\_rule](http://www.dep.pa.gov/lead_copper_rule)

## B. PUBLIC EDUCATION

**All community and nontransient noncommunity public water systems exceeding the lead action level must deliver a public education (PE) program to their customers within 60 days of the end of the monitoring period. For systems on an annual or triennial monitoring frequency, the end of the monitoring period is September 30th.** The PE program must be continued if the system exceeds the lead action level.

### 1. Requirements for Community Water Systems:

#### Content

Community water systems must include EPA mandatory language and other content requirements established under 40 CFR 181.95(a)(1) and (2).

DEP recommends that CWSs obtain a copy of EPA's "*Implementing the Lead Public Education Provision of the Lead and Copper Rule*" (EPA 816-R-08-0007, June 2008) for detailed information about the lead public education requirements. This document includes fill-in-the-blank content templates for each type of delivery format.

## Section 4 - Public Education

This document is located at the following EPA link:

<https://www.epa.gov/dwreginfo/lead-and-copper-rule-compliance-help-public-water-systems>

DEP has created a fill-in-the-blank pamphlet that contains EPA's mandatory language which is posted on the DEP LCR Webpage and located in eLibrary at this link:

<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-13226>

The PE program informs the public about the adverse health effects of lead and explains the steps people can take in their homes to reduce exposure to lead in drinking water.

The program includes mandatory language established by EPA for water bill inserts, public education notice, pamphlets and brochures, and press releases. Any additional information presented by a system shall be consistent with the mandatory language. Systems may delete information pertaining to lead service lines, upon approval from DEP, if they do not have lead service lines in their service area. Systems may modify the language regarding building permit record availability and consumer access to these records upon approval from DEP. If appropriate, public education materials shall be bilingual or multilingual.  
**Systems may contact the DEP district offices to obtain further assistance with the public education requirements.**

**Community water systems serving consumers who cannot make plumbing improvements that are recommended in the mandatory language (such as a prison or nursing home) may use the nontransient noncommunity public education materials and delivery methods. To do this, they must apply to DEP in writing. (See instructions for nontransient noncommunity requirements provided in the "Delivery" subheading of this section of the guide.)**

### **Water bill/inserts:**

A community water system must provide the following information on or in each water bill if the system exceeds the action level for lead.

"[INSERT WATER SYSTEM NAME] found high levels of lead in drinking water in some homes. Lead can cause serious health problem. For more information please call [INSERT WATER SYSTEM NAME] (or visit [INSERT WEB SITE ADDRESS])."

## Section 4 - Public Education

### **Press release:**

A water system must submit a press release to a newspaper and television and radio stations. Use the EPA press release template to fulfill the mandatory public education content language requirement.

EPA's "*Implementing the Lead Public Education Provision of the Lead and Copper Rule*" (EPA 816-R-08-0007, June 2008):

<https://www.epa.gov/dwreginfo/lead-and-copper-rule-compliance-help-public-water-systems>

**NOTE:** Systems serving 3,300 or fewer persons may omit the press release if notices meeting the content requirements are distributed to every household served by the system.

### **Web Site Posting for Systems Serving more than 100,000 people:**

A community water system serving more than 100,000 people, must post education materials to the water system's web site if the system exceeds the lead action level.

**NOTE: Water systems must submit copies of all written public education materials to DEP prior to delivery.**

### **Delivery**

The PE program must be delivered to your entire service area, and targeted to high-risk segments of the population (i.e., community members who are either more susceptible to the adverse effects of lead or who are at greater risk of exposure to lead in drinking water). The 2010 short-term revisions expanded the delivery requirements relating to contacting **at-risk customers** and included additional delivery activities.

Within 60 days after the end of the monitoring period in which the lead exceedance occurred (September 30th = end of monitoring period for annual or triennial monitoring frequencies), a **community water system must deliver public education materials to:**

- All bill paying customers.
- The local board or department of public health that has jurisdiction over the water system's service area, along with an informational notice encouraging distribution to all the potentially affected consumers. The water supplier shall contact the local board or department of public health **directly by phone or in person.** The local board or department of public health may provide a specific list of additional community based organizations serving target populations outside the service area of the

## Section 4 - Public Education

water system. If a list is provided, the water supplier shall deliver PE materials to all organizations on the list.

- Organizations located within the water system's service area, along with an informational notice that encourages distribution to all the organizations potentially affected customers or water system's users:
  - Public and private schools or school board or both
  - Women Infants and Children (WIC) and Head Start programs
  - Public and private hospitals and medical clinics
  - Pediatricians
  - Family planning clinics
  - Local welfare agencies
- Additionally, a community water system must make a good faith effort to **contact customers most at risk** by delivering materials to the contact list of organizations identified below with an informational notice encouraging them to pass the information along. Even if agencies are not located within the water system service area, water suppliers must make a good faith effort to contact at-risk customers from the following categories:
  - Licensed childcare facilities
  - Public and private preschools
  - Obstetrician-Gynecologists and Midwives

The good faith effort must include requesting a specific contact list of the organizations from the local board or department of public health that has jurisdiction over the water system's service area.

### Additional Delivery Activities:

- **For systems serving 3,300 or more people:** the system must implement additional activities from **at least three activities** from the categories listed:
  - Public service announcements
  - Paid advertisements
  - Public area information displays
  - E-mails to customers
  - Public meetings
  - Household deliveries
  - Targeted individual customers contact
  - Direct distribution of education materials to all multifamily homes and institutions.

## Section 4 - Public Education

**NOTE: For systems serving 3,300 people or fewer,** the system must implement 1 additional activity instead of 3.

- The educational content and selection of these activities shall be determined in consultation with DEP.
- A water system may request an extension of the 60-day deadline, but the water system must receive written approval from DEP prior to the 60-day deadline.

	TASKS				
	Bill Insert	PE Notice	Press Release	3 Additional Activities	Letter to State
<b>Every Quarter</b>	X				
<b>Every 6 Months</b>			X (See note*)		
<b>Every 12 Months</b>	X	X		X (See note*)	
<b>Within 10 days after completing the task</b>					X

\*CWS serving 3,300 or fewer persons may omit the press release and are only required to conduct 1 additional activity instead of 3. See the following information for more details.

### **Community Water Systems serving 3,300 or fewer people:**

- May modify its PE program as follows:
  - The system may limit distribution of PE materials required to facilities that are most likely to be visited by pregnant women and children.
    - Public and private schools or school board or both
    - Women Infants and Children (WIC) and Head Start programs
    - Public and private hospitals and medical clinics
    - Pediatricians
    - Family planning clinics
    - Local welfare agencies
  - The system may omit the press release if notices meeting the content requirements are distributed to every household served by the system.
  - The system shall implement at least one additional activity instead of three activities.

## Section 4 - Public Education

### 2. Requirements for Nontransient Noncommunity Water Systems:

Within 60 days after the end of the monitoring period in which the lead exceedance occurred (September 30th = end of monitoring period for annual or triennial monitoring frequencies), a nontransient noncommunity water system must deliver public education materials in the following ways:

- The water supplier shall post informational posters on lead in drinking water in a public place or common area in each of the buildings served by the system and distribute informational pamphlets and/or brochures on lead in drinking water to each person routinely served by the nontransient noncommunity water system.

#### Link to NTNCWS PE Poster and Pamphlet:

<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-10963>

- Systems may use electronic transmission in lieu of or combined with printed materials if it achieves at least the same coverage.
- A letter must be submitted to the department within 10 days after completing the task demonstrating that the system has delivered the PE materials that meet the regulation's content and delivery requirements.

**NOTE: Community water systems serving consumers who cannot make plumbing improvements that are recommended in the mandatory language (such as a prison or nursing home) may use the nontransient noncommunity public education materials and delivery methods. To do this, they must apply to DEP in writing.**

	TASKS		
	Poster	Pamphlet	Letter to State
Every 12 Months	X	X	
Within 10 days after completing the task			X

### C. CERTIFICATION LETTER

- A letter must be submitted to the department within 10 days after the end of the 60-day delivery deadline demonstrating that the system has delivered the PE materials that meet the regulation's content and delivery requirements. This letter must include a list of all newspapers, radio and television stations, facilities, and organizations to which the water supplier delivered PE materials during the most recent period for which the system was required to perform public education tasks.

## Section 4 - Public Education

- When a system is repeating tasks (bill insert, brochures, press releases and additional activities), the supplier is required to submit a certification letter within 10 days of completing the task.

### D. DISCONTINUATION OF PUBLIC EDUCATION PROGRAM

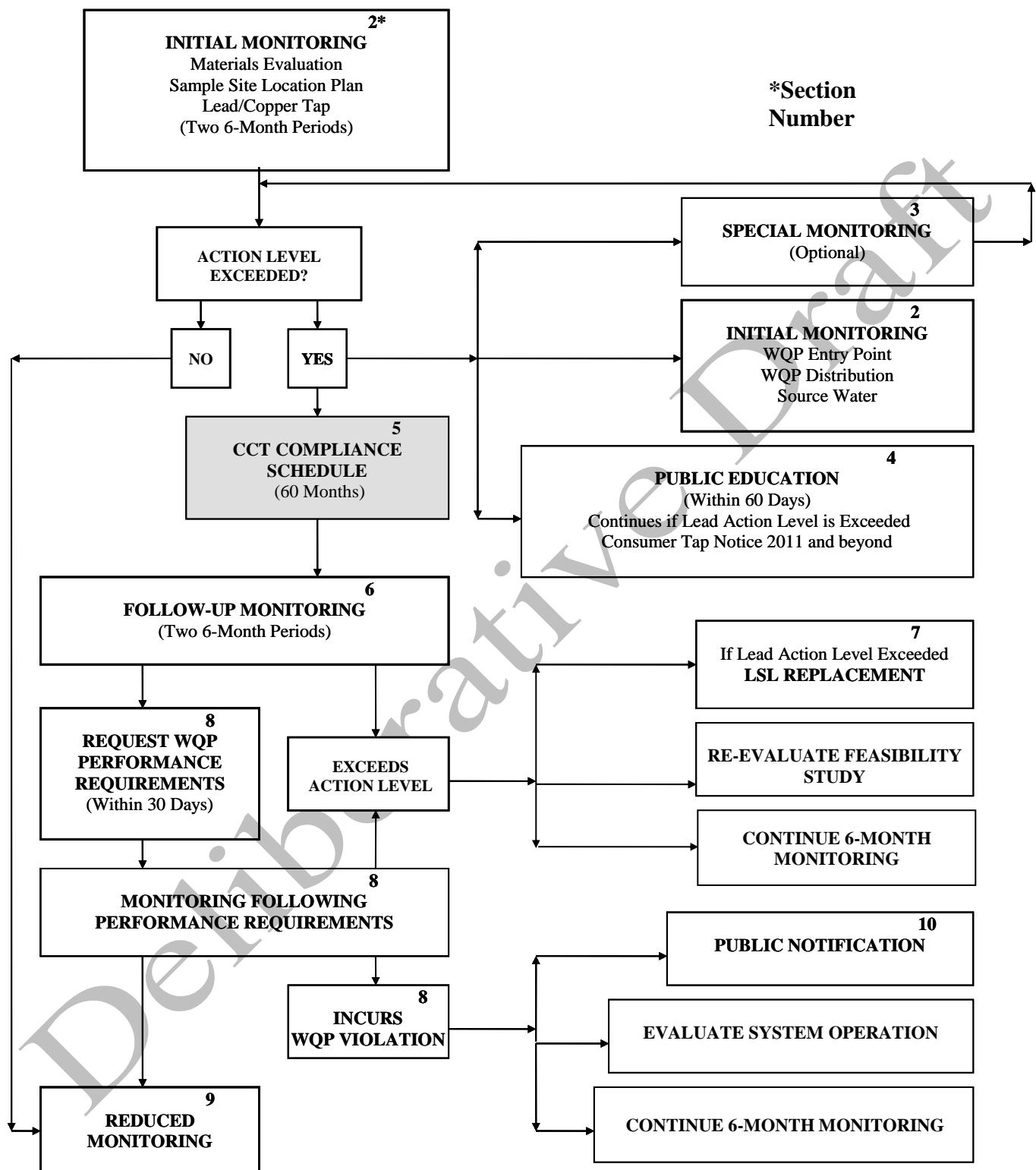
- A water supplier may discontinue implementation of its PE program if the system does not exceed the lead action level during the most recent **six-month monitoring period**.
- **Systems with an annual or triennial monitoring frequency can't avoid delivering a PE program because the 60-day deadline occurs before the beginning of the next 6-month monitoring period.**
- The system shall resume PE if it exceeds the lead action level at any time during any future monitoring period.

### E. NOTIFICATION OF CUSTOMER MONITORING

A water supplier that fails to meet the lead action level shall provide information regarding laboratories certified by the department for lead and copper testing to any customer who requests it.

## Section 5: CCT Compliance Schedule

### 5. CCT COMPLIANCE SCHEDULE



**NOTE:** Small and medium systems can qualify for reduced monitoring at any time by not exceeding the lead and copper action levels during two consecutive six-month monitoring periods.

## Section 5: CCT Compliance Schedule

### A. OPTIMAL CORROSION CONTROL TREATMENT

All systems subject to the Lead and Copper Rule must achieve optimal corrosion control treatment (OCCT). OCCT is defined as follows:

OCCT minimizes the lead and copper concentrations at users' taps while ensuring that the treatment does not cause the system to violate any primary maximum contaminant level.

OCCT is achieved in one of the following ways:

#### **Small and medium systems:**

- By not exceeding either action level for lead and copper tap monitoring during two consecutive six-month monitoring periods.

#### **All systems:**

- If, during two consecutive six-month monitoring periods, their lead and copper tap monitoring results do not exceed the action levels at the 90th percentile and the difference between the 90th percentile lead level and the highest source water lead concentration is less than 0.005 mg/L.
- When the system installs new CCT facilities or modifies existing treatment and operates in compliance with the water quality parameter (WQP) performance standards specified for that system by the department.

Systems are required to **optimize corrosion control treatment (OCCT) at all times** to ensure public health protection.

- Any changes in source water (adding or removing sources or interconnections) or changes in treatment **must be approved by DEP** via a permit or permit amendment **prior to making the change**. Water systems must assess simultaneous compliance issues with other rules as part of the permitting process.
- Systems should review EPA's "**OCCT Evaluation Technical Recommendations for Public Water Systems**" (EPA 816-B-16-003, March 2016) which also discusses impacts on any change to a system's CCT. Here's the link to this document:

<https://www.epa.gov/dwreginfo/optimal-corrosion-control-treatment-evaluation-technical-recommendations>

Systems requiring construction or modification of treatment facilities to achieve OCCT must adhere to a compliance schedule. Modification of treatment facilities includes changes in treatment chemicals, with or without modifications to chemical feed equipment.

## Section 5: CCT Compliance Schedule

### **B. COMPLIANCE MILESTONES FOR EXISTING LARGE SYSTEMS**

Table 1 lists the compliance milestones and the original fixed dates for large systems that existed when the regulation became effective.

<b>TABLE 1</b> <b>COMPLIANCE MILESTONES FOR LARGE SYSTEMS*</b>	
<b>Activity</b>	<b>Date</b>
Conduct Initial Monitoring	
Submit CCT Feasibility Study	June 30, 1994
Submit Permit Application	March 31, 1995
Complete Construction of CCT Facilities	December 31, 1996
Conduct Follow-up Monitoring	
Request Department to Designate WQP Performance Requirements	January 31, 1998
Conduct Routine Monitoring	

\*If a large system fails to achieve or maintain OCCT after completing the required milestones above, that system may need to repeat the milestones, beginning with submitting a feasibility study. See Table 2 on the next page.

### **C. COMPLIANCE MILESTONES FOR SYSTEMS REQUIRING CCT**

Table 2 is the compliance schedule for systems requiring CCT. Because initial monitoring is phased-in by system size and CCT is required only if a small or medium system exceeds an action level, this schedule begins the first day after the end of the monitoring period in which the system first exceeds an action level. Large systems that do not achieve or maintain OCCT may need to repeat the compliance milestones found on Table 2.

<b>TABLE 2</b> <b>COMPLIANCE MILESTONES FOR SYSTEMS REQUIRING CCT</b>		
<b>Activity</b>	<b>Small/Medium</b> <b>Months from Exceeding an Action Level</b>	<b>Large</b> <b>Months from Losing OCCT Designation</b>
Conduct Initial Monitoring		
Submit CCT Feasibility Study	Within 18 Months	Within 18 Months
Submit Permit Application	Within 30 Months	Within 30 Months
Initiate Construction of CCT Facilities	Within 48 Months	Within 48 Months
Complete Construction of CCT Facilities	Within 60 Months	Within 60 Months
Conduct Follow-up Monitoring		
Request Department to Designate WQP Performance Requirements Within 30 Days of the End of the Follow-up Monitoring Period		
Conduct Routine Monitoring		

## Section 5: CCT Compliance Schedule

### D. CCT FEASIBILITY STUDY

The Lead and Copper Rule requires all large systems and those small and medium systems that exceed either the lead or copper action level to prepare CCT feasibility studies. Studies must be submitted within 18 months of exceeding an action level.

The purpose of the study is to identify corrosion control priorities, evaluate corrosion control alternatives, and recommend OCCT.

The department encourages systems to conduct desktop evaluations of treatment alternatives, with emphasis on the use of data from systems with successful CCT under analogous conditions. Demonstration testing, which usually involves either bench or full-scale testing using pipe loops or metal coupons, will be required only when a thorough desktop evaluation is insufficient to provide a confident treatment recommendation. Demonstration testing also may be required when a system continues to exceed an action level after CCT has been installed.

As a minimum, the system should include the information required in a basic study as outlined below:

1. A sample site location plan;
2. A summary of all lead and copper and WQP monitoring results;
3. A desktop evaluation of alkalinity and pH adjustment, calcium hardness adjustment, and corrosion inhibitor addition or a combination of these treatments. The evaluation shall recommend OCCT and WQP performance requirements for the selected treatment. If source water treatment is needed to achieve OCCT, the system shall evaluate the source water treatments including ion exchange, reverse osmosis, lime softening and coagulation/filtration; and
4. A proposed schedule for completion of the remaining CCT compliance steps including, but not limited to, treatment design and permit application submittal, financing and construction, and initiation of operation.

A demonstration study should include the evaluation of CCTs using pipe rig/loop tests, metal coupon tests or partial system tests.

A Basic Feasibility Study Guide is available which includes a desktop evaluation form and describes additional information required for a complete study. A system that prepares a complete basic feasibility study in accordance with the instructions will generally comply with the Lead and Copper Rule requirements pertaining to CCT studies, select the most feasible alternative, minimize the cost impact of treatment and, in most cases, eliminate the need for demonstration testing. This guide is available from the district or regional DEP offices.

## E. PERMIT REQUIREMENTS

Systems requiring construction or modification of CCT facilities under the Lead and Copper Rule must first obtain the appropriate permit approvals from the department.

The permit requirements include a two-permit process which is consistent with current permitting procedures. The two permits include a construction permit or amendment and an operation permit or amendment.

### ***Construction Permit and Permit Amendments***

A water system must first submit an application for a construction permit for a newly-created system or an amended construction permit for a currently-permitted system for CCT facilities by the applicable deadline. The application shall include all applicable data including plans and specifications for the selected CCT and a recommendation for WQP performance requirements. The construction permit allows the system to construct the approved facilities.

Small community water systems with high quality ground water can qualify for a **minor permit amendment** if the system submits a written request to the department that satisfies the following:

1. The system is a small system;
2. The sources of supply for the system are not surface-water sources;
3. Except for CCT, the sources require treatment no greater than disinfection; and
4. The proposed CCT is limited to alkalinity or pH adjustment, or both.

Nontransient noncommunity water systems may qualify for **permit-by-rule** under the same criteria as mentioned above if the system files a brief description of the proposed treatment, including recommended WQP performance requirements for OCCT, on forms acceptable to the department. Proposed treatment systems must meet the Department's design standards. Descriptions of modifications may be filed prior to construction if the system desires technical assistance, but shall be filed within 30 days of initiation of operation of the modification.

### ***Operation Permits and Permit Amendments***

Following completion of construction and department pre-operation inspection, the system shall obtain an operation permit or an amended operation permit prior to initiation of operation of CCT facilities. (**Note: Nontransient noncommunity water systems that received a permit-by-rule are not required to obtain an operation permit or an amended operation permit until after follow-up monitoring is completed.**) The department will not issue an operation permit unless the water system complies with the operation and maintenance plan requirements and the operator certification and training requirements (Section 11).

## Section 5: CCT Compliance Schedule

After follow-up monitoring (Section 6) is completed, all systems shall submit a request for department designation of OCCT performance requirements based on the appropriate schedule (Section 8) and the department will issue an amended operation permit designating the performance requirements.

### ***Design Standards***

CCT facilities shall be designed to satisfy the following standards:

1. A minimum pH measured in all distribution samples of at least 7.0; and
2. For community and nontransient noncommunity systems that received a minor permit amendment and a permit-by-rule respectively, a minimum alkalinity measured in all distribution samples of 20 mg/L.

### ***Fees***

A system receiving permitting and related services from the department for CCT facilities shall pay the applicable fees by a check in the amount specified to the “Commonwealth of Pennsylvania.”

An application for a construction permit or major permit amendment shall be accompanied by payment for the following fee:

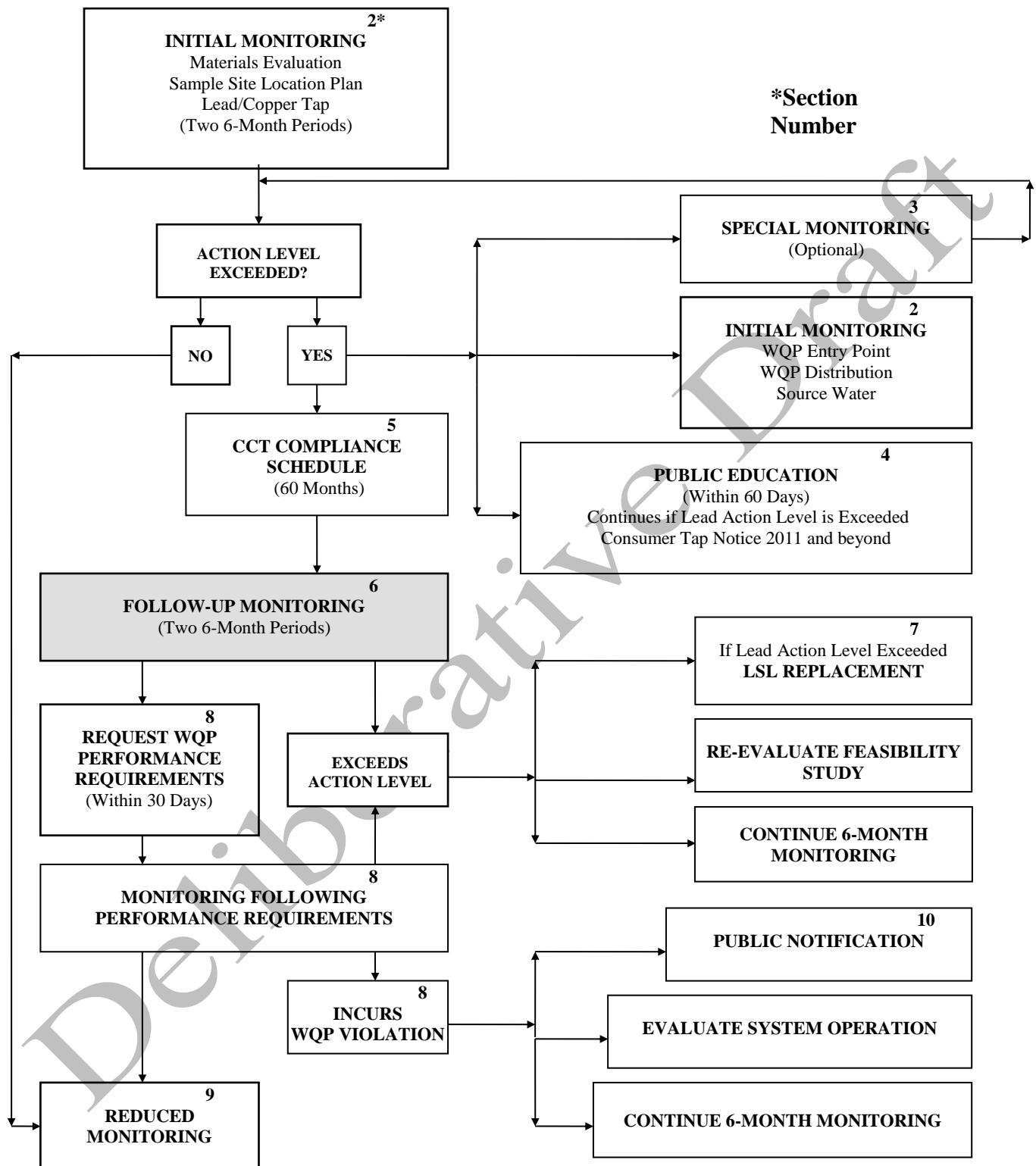
<b>System Size</b>	<b>Fee</b>
Small	\$250.00
Medium	\$500.00
Large	\$1,750.00

A system not required to submit an application for a construction permit or major permit amendment shall submit payment for the applicable fee below with its request for department designation of OCCT performance requirements.

<b>System Size</b>	<b>Fee</b>
Small	\$125.00
Medium	\$375.00
Large	\$1,250.00

## Section 6: Follow-Up Monitoring

### 6. FOLLOW-UP MONITORING



**NOTE:** Small and medium systems can qualify for reduced monitoring at any time by not exceeding the lead and copper action levels during two consecutive six-month monitoring periods.

## Section 6: Follow-Up Monitoring

Systems that have completed construction or modification of corrosion control treatment facilities are required to conduct follow-up monitoring. Follow-up monitoring demonstrates the effectiveness of the treatment in reducing lead and copper at customers' taps. These results provide the basis for corrosion control treatment performance requirements (Section 8).

### A. LEAD AND COPPER TAP MONITORING

Follow-up lead and copper tap monitoring for water systems consists of two consecutive six-month periods at the same number of sites as initial monitoring. A system may begin follow-up monitoring any time following issuance of an operations permit for CCT facilities, if the monitoring is conducted by the deadlines given below.

**A small or medium water system shall monitor during each of two consecutive six-month monitoring periods following issuance of an operations permit for CCT facilities but beginning no later than 60 months from the date an action level was exceeded.** A small or medium system that does not exceed the lead and copper action levels during follow-up monitoring may go to reduced monitoring (Section 9).

**A large water system shall monitor during each of two consecutive six-month monitoring periods beginning no later than January 1, 1997.**

A system which exceeds the lead action level after construction or modification of corrosion control treatment facilities shall begin lead service line replacement (Section 7).

### B. WATER QUALITY PARAMETER MONITORING

Follow-up water quality parameter monitoring for water systems consists of collection of distribution samples during each specified monitoring period at the same number of sites as initial monitoring and at each entry point at least once every two weeks.

The water quality parameters shall be measured as follows.

1. **At sites within the distribution system, two sets of samples taken on different days from the same sample sites for:**
  - pH;
  - Alkalinity;
  - Orthophosphate, when a phosphate inhibitor is used;
  - Silica, when a silicate inhibitor is used; and
  - Calcium, when calcium carbonate stabilization is used.

## Section 6: Follow-Up Monitoring

### 2. At each entry point, one set of samples every two weeks for:

- pH;
- When alkalinity is adjusted as part of corrosion control treatment, a reading of the dosage rate of the chemical used to adjust the alkalinity, and the alkalinity concentration; and
- When a corrosion inhibitor is used as part of corrosion control treatment, a reading of the dosage rate of the inhibitor used, and the concentration of orthophosphate or silica, whichever is applicable.

**A small or medium water system shall measure the water quality parameters during each six-month monitoring period in which the system exceeds either the lead or copper action level.** Distribution system monitoring shall be conducted once during the monitoring period and biweekly entry point monitoring shall continue if the system exceeds the action level.

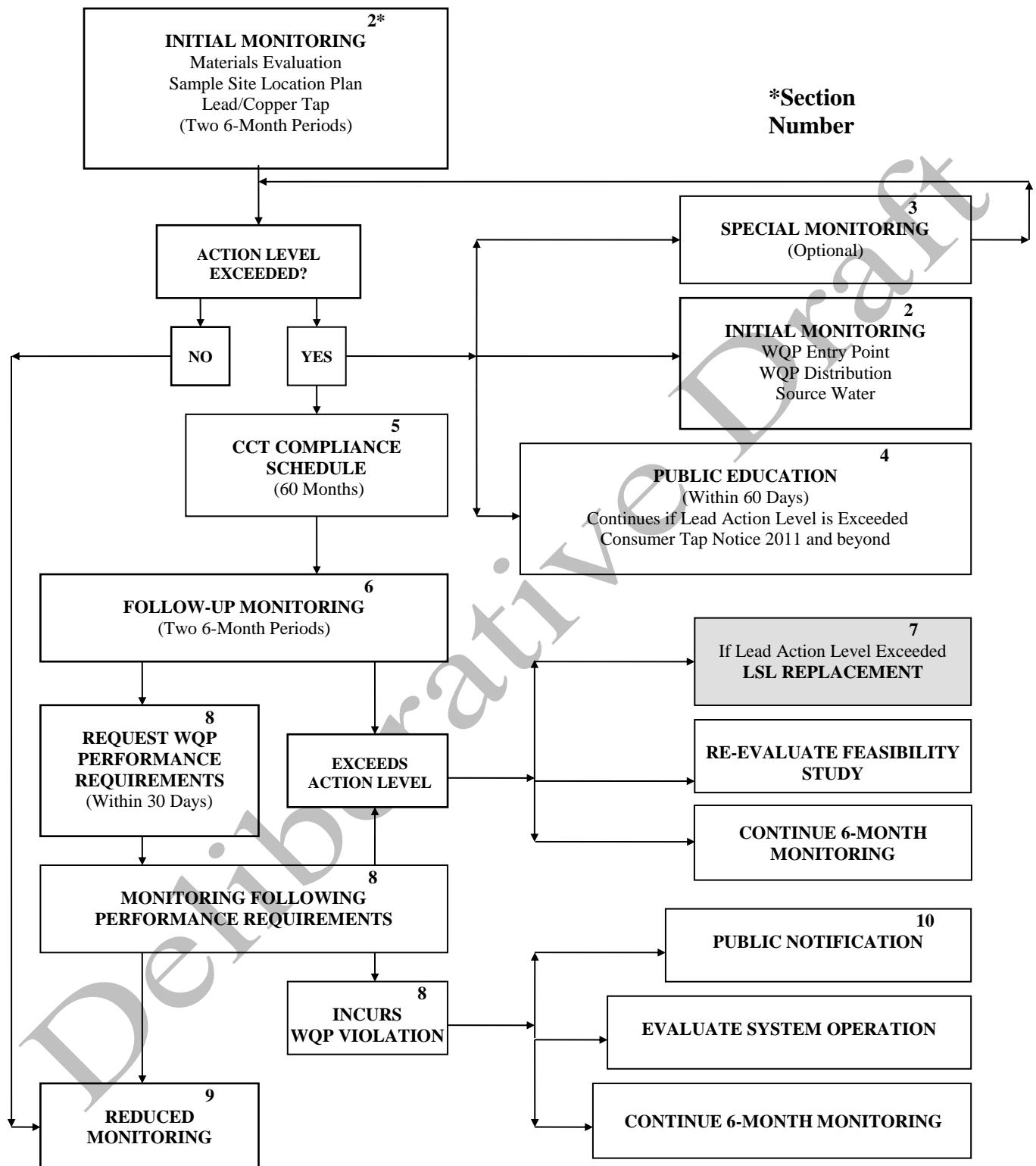
**A large water system shall measure the water quality parameters during each of the two consecutive six-month monitoring periods in which the system conducts lead and copper tap monitoring.**

### C. SOURCE WATER MONITORING

A system which installs source water treatment shall monitor the source water at source water treatment entry points for the parameter(s) for which the treatment was installed. The system shall monitor source water during the two consecutive six-month monitoring periods. Any other system which exceeds either the lead or copper action level while conducting follow-up lead and copper tap monitoring shall collect one source water sample from each entry point within six months of the end of the monitoring period in which the action level was exceeded.

## Section 7: Lead Service Line Replacement

### 7. LEAD SERVICE LINE REPLACEMENT



**NOTE:** Small and medium systems can qualify for reduced monitoring at any time by not exceeding the lead and copper action levels during two consecutive six-month monitoring periods.

## A. LEAD SERVICE LINE REPLACEMENT REQUIREMENTS

Under the Lead and Copper Rule, systems that still exceed the lead action level during lead and copper tap monitoring conducted after construction or modification of corrosion control treatment facilities must initiate lead service line (LSL) replacement. The first year of lead service line replacement begins on the first day following the end of the monitoring period in which the action level was exceeded. If a system is on an annual or triennial monitoring frequency, the end of the monitoring period is September 30 of the calendar year in which sampling occurred. If DEP has designated an alternate monitoring period in writing, the end of the monitoring period is the last day of the designated alternate monitoring period. Water suppliers must replace LSLs at a rate of at least 7 percent per year beginning the next 6-month monitoring period following the action level exceedance. The water supplier need only replace those LSLs which exceed the lead action level when specifically sampled for this determination as outlined below:

- **1 liter sample size;**
- **First-draw after six hour standing time in the LSL;**
- **Collected in one of the following three ways:**
  1. **At the tap, flush the volume of water between the tap and the LSL. The volume of water shall be calculated based on the interior diameter and length of the pipe between the tap and the LSL; or**
  2. **Tap directly into the LSL; or**
  3. **If the sampling site is a single-family residence, allow the water to run until there is a significant change in temperature which would be indicative of water that has been standing in the LSL.**

When replacing LSLs, the water supplier must replace the portion of the line that it owns. The supplier must make an offer to the property owner to replace the privately-owned portion of the LSL. A system is not required to replace the line if the owner refuses to pay for the cost of replacement of the privately-owned portion of the line, or if any laws prohibit this replacement.

A supplier that does not replace the **entire LSL** must do the following:

- Notify the residents at least 45 days before partial line replacement that lead levels may increase temporarily following the replacement.

The notice must include:

- An explanation that residents may experience a temporary increase of lead levels in their drinking water.
- Measures consumers can take to minimize their exposure to lead.

## Section 7: Lead Service Line Replacement

- The water system's offer to collect a sample from each partially-replaced LSL that is representative of the water.
- Within 72 hours of completing the partial LSL replacement, collect at the system's expense a lead sample that is representative of the lead content of water in the service line using the procedures listed on the previous page.
- Within 3 business days of receiving the results, notify the residents by mail of these results. Systems have the option to post this information in a conspicuous place in those instances where multifamily dwellings are served by the line.

A water supplier may cease replacing LSLs if the system conducts lead and copper tap monitoring during two consecutive monitoring periods without exceeding the lead action level.

### **B. RESUMPTION OF LEAD SERVICE LINE REPLACEMENT**

- Water systems that resume a LSL replacement program shall update their LSL inventory to include those sites that were previously excluded if the water supplier sampled the LSL and none of the lead concentrations in any service line samples from that line exceeds 0.015 mg/L.
- Systems shall divide the updated number of remaining LSLs by the number of remaining years in the replacement program to determine the number that must be replaced each year.
- If the system has completed a 15-year LSL replacement program, DEP will determine a schedule for replacing or retesting LSLs that were previously tested out under the replacement program.

### **C. REPORTING REQUIREMENTS**

A water system conducting LSL replacement shall, within the first three months of the first year of LSL replacement, submit to the department the following:

1. Evidence that a materials evaluation of the system has been conducted;
2. A schedule for replacing at least 7 percent of the LSLs identified in the materials evaluation; and
3. The initial number of lead service lines in its distribution system and the portions owned by the system based on a materials evaluation and the legal authority regarding the portion owned by the system.

A water system conducting LSL replacement shall notify the department in writing that the system has replaced at least 7 percent of the LSLs identified in the materials evaluation, or that the results of lead sampling from individual lines scheduled for

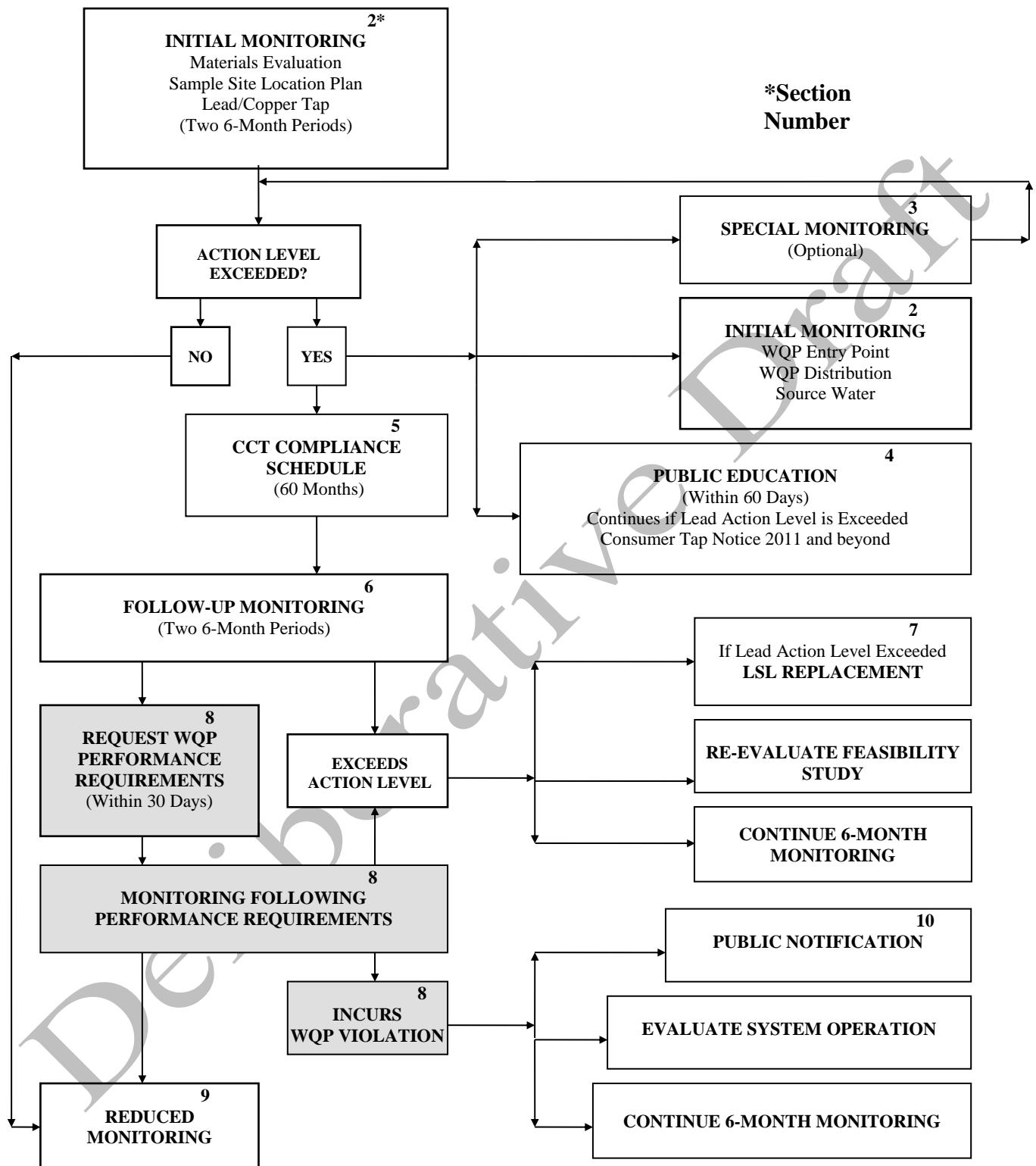
## Section 7: Lead Service Line Replacement

replacement do not exceed 0.015 mg/L. The notification shall be given by the end of each year of LSL replacement and contain the following information:

1. The name, address and public water system identification number of the public water system;
2. The number of LSLs scheduled for replacement during the previous year;
3. The number and location of LSLs replaced during the year; and
4. If LSL sampling is completed in individual LSLs, the date and the results of this sampling and method of sampling used.

## Section 8: OCCT Performance Requirements

### 8. OCCT PERFORMANCE REQUIREMENTS



**NOTE:** Small and medium systems can qualify for reduced monitoring at any time by not exceeding the lead and copper action levels during two consecutive six-month monitoring periods.

## Section 8: OCCT Performance Requirements

### A. OCCT PERFORMANCE REQUIREMENTS

Systems installing corrosion control treatment (CCT) and/or source water treatment will be required to operate this treatment within specified performance standards designated by the department.

Upon completion of required follow-up monitoring conducted after construction or modification of CCT and/or source water treatment facilities, the water system shall submit to the department a request for designation of optimal corrosion control treatment (OCCT) performance requirements. The request shall include as a minimum a summary of analyses conducted during follow-up monitoring and recommended performance requirements.

### B. WQP PERFORMANCE REQUIREMENTS

The department will act upon a system's request for the department's designation of WQP performance requirements following the time table below:

System Type	Deadline for System Request to DEP to Designate Performance Requirements	DEP Will Designate Performance Requirements
<i>Large*</i>	January 31, 1998	By June 30, 1998
<i>Systems installing/ modifying CCT</i>	Within 30 days after follow-up monitoring period	Within 18 months after completion of construction

\*If a large system fails to achieve or maintain OCCT after completing the milestones, that system may be required to repeat the milestones and would request DEP to designate performance requirements within 30 days after the follow-up monitoring period.

Depending on the type of CCT, the performance requirements will be designated as follows:

- Minimum pH value or range at each entry point;
- Minimum pH value in distribution samples;
- If inhibitor used, minimum inhibitor concentration or range at each entry point and in distribution samples;
- If alkalinity adjusted, minimum alkalinity concentration or range at each entry point and in distribution samples; and
- If calcium carbonate stabilization used, minimum calcium concentration or range in distribution samples.

## Section 8: OCCT Performance Requirements

The performance requirements will be specified in the amended operation permit.

### C. SOURCE WATER TREATMENT PERFORMANCE REQUIREMENTS

The department will act upon a system's request for the department's designation of source water treatment performance requirements when WQP performance requirements are established for the system.

The performance requirements will be specified in the amended operation permit.

### D. MONITORING AFTER PERFORMANCE REQUIREMENTS ESTABLISHED

A system shall conduct six-month monitoring beginning no later than the next six-month monitoring period following the department's designation of OCCT WQP performance requirements and/or source water performance requirements.

- **All large systems** are required to conduct six-month monitoring after performance requirements are established until they qualify for reduced monitoring (Section 9).
- **A small or medium system** is required to conduct this monitoring only if the system has not yet qualified for reduced monitoring (i.e., the system exceeded an action level during follow-up monitoring).

#### Lead and Copper Tap Monitoring

A system required to conduct lead and copper tap monitoring shall monitor during each six-month monitoring period at the same number of sites as initial monitoring until the system qualifies for reduced monitoring.

#### WQP Performance Monitoring

A system required to conduct WQP performance monitoring shall measure the applicable WQPs in the distribution system during each six-month monitoring period at the same number of sites as initial WQP monitoring and at each entry point at least once every two weeks. The results of this monitoring will be used by the department in determining compliance with the WQP performance requirements.

A large water system shall conduct this monitoring during each six-month monitoring period until the system qualifies for reduced monitoring.

A small or medium system which is conducting lead and copper tap monitoring as outlined above shall measure the WQPs during each six-month monitoring period in which the system exceeds either the lead or copper action level. Distribution system monitoring shall be conducted at least once during the monitoring period and biweekly entry point monitoring shall continue if the system exceeds the action level.

## Section 8: OCCT Performance Requirements

### **Source Water Monitoring**

A system which is conducting lead and copper tap monitoring as outlined above shall monitor for the parameters exceeding the action level at each entry point within six months of the action level exceedance.

For systems which have installed source water treatment, the results of this monitoring will be used by the department in determining compliance with source water treatment performance requirements.

### **E. DETERMINING COMPLIANCE WITH PERFORMANCE REQUIREMENTS**

A system that operates within the specified ranges for each applicable parameter is in compliance with the treatment technique and has achieved OCCT.

A system is out of compliance with WQP performance requirements and incurs a WQP violation for a 6-month period if it has excursions for any department specified water quality parameter on more than any 9 days during the 6-month monitoring period.

- Compliance determinations are always based on a 6-month monitoring period, regardless of the system's monitoring schedule (daily, biweekly, every 6 months, annually, triennially).
- An excursion is any “daily value” for a WQP that is below the minimum value or outside the range set by DEP.
- The duration is the number of days that elapse starting with the day the excursion first occurs, until the day the daily value is within the WQP range or above the minimum for that WQP.
- The excursion days can occur any time during the 6-month monitoring period and do not have to be consecutive days.
- Excursions are determined at **specific** sampling points or for **specific** WQP parameters.
- To determine if a system is in compliance, count the total number of days that a system had an excursion for each sampling location and for each WQP.
- Systems that have 9 or fewer excursion days are in compliance. Those that have more than 9 days are out of compliance.

A system that incurs a WQP violation and/or source water monitoring violation shall:

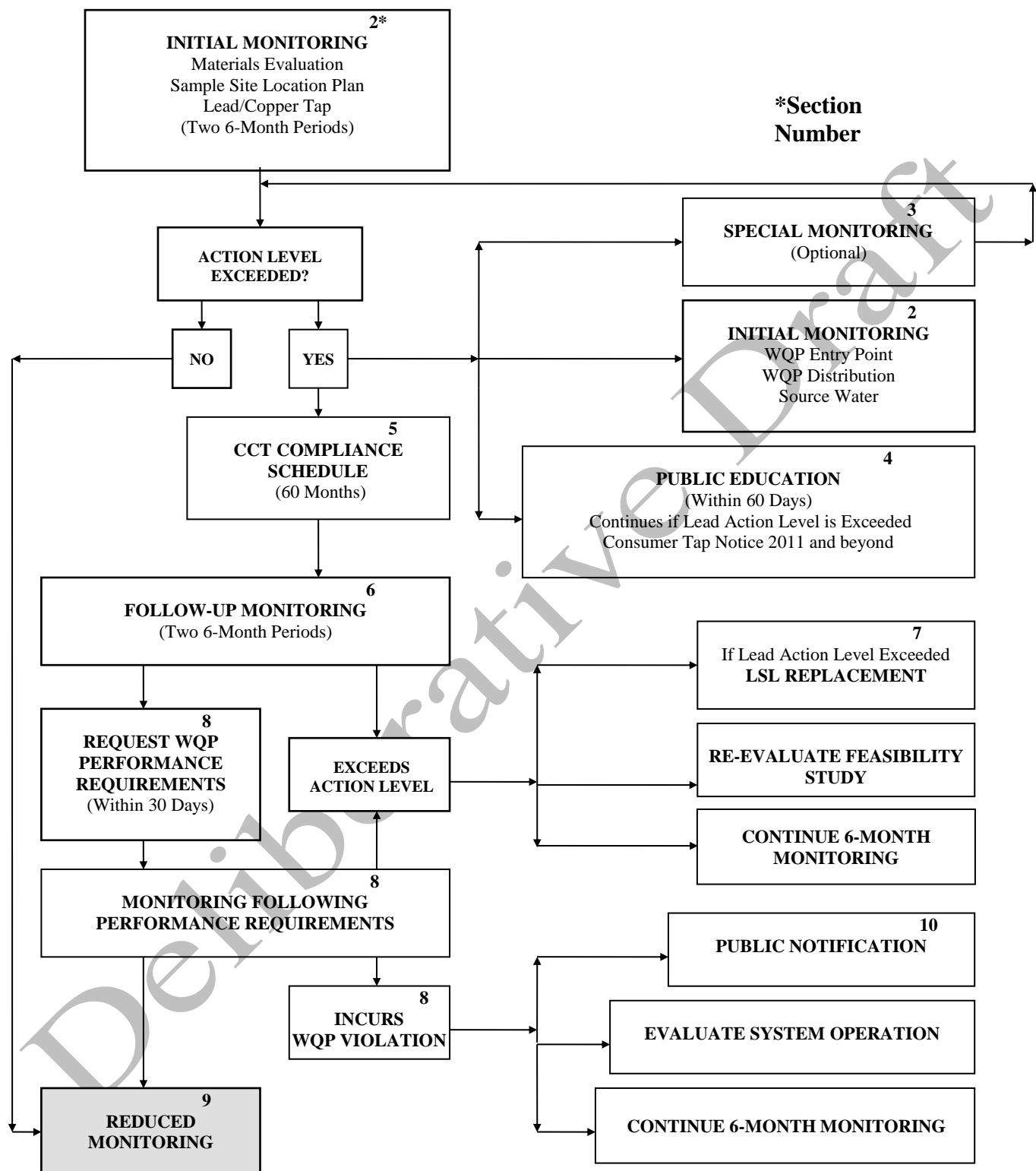
- Report the violation to DEP;
- Issue public notification (Section 10);

## Section 8: OCCT Performance Requirements

- **For large systems:** Conduct 6-month lead and copper tap and WQP water monitoring at the original number of sampling sites;
  - **For small and medium systems exceeding an action level:** Conduct 6-month lead and copper tap at the original number of sampling sites (and WQP samples when an action level is exceeded);
- Include the violation in its Consumer Confidence Report (CCR) if system is a community water system; and
- Evaluate system operation (May need to repeat compliance milestones).

## Section 9: Reduced Monitoring

### 9. REDUCED MONITORING



**NOTE:** Small and medium systems can qualify for reduced monitoring at any time by not exceeding the lead and copper action levels during two consecutive six-month monitoring periods.

## Section 9: Reduced Monitoring

### A. LEAD AND COPPER TAP WATER MONITORING

**A community water system** conducting reduced lead and copper tap monitoring shall collect one sample from the following number of sample sites:

SYSTEM SIZE	NO. OF SAMPLING SITES
>100,000	50
10,001 to 100,000	30
3,301 to 10,000	20
501 to 3,300	10
101 to 500	5
≤100	5

#### *Annual Lead and Copper Tap Monitoring*

Systems may reduce the number of sample sites and reduce the frequency of sampling to **once per year** in one of the following ways:

1. **Small and medium water systems** can automatically qualify for reduced monitoring by not exceeding the lead and copper action levels during each of two consecutive six-month monitoring periods.
2. **Any system** can qualify for reduced monitoring by not exceeding the lead and copper action levels during each of two consecutive six-month monitoring periods and if the difference between the 90th percentile lead level and the highest source water lead concentration is less than 0.005 mg/L.
3. **Any water system that has installed or modified CCT** can qualify for reduced monitoring by not exceeding the lead and copper action levels during each of two consecutive six-month monitoring periods **AND** by maintaining the range of values for the optimal corrosion control treatment (OCCT) water quality parameter (WQP) performance requirements during each of two consecutive six-month monitoring periods.

#### *Triennial Lead and Copper Tap Monitoring*

Systems may further reduce the frequency of sampling to **once every three years** at the reduced number of sample sites in one of the following ways:

1. **Small or medium water systems** can automatically qualify for reduced monitoring by not exceeding the lead and copper action levels during three consecutive years of monitoring, including initial monitoring; or
2. **Any water system that has installed or modified CCT** can automatically qualify for reduced monitoring by not exceeding the lead and copper action levels during **three consecutive years** of 6-month or annual monitoring **AND** by maintaining the range of values for OCCT WQP performance requirements during three consecutive years of monitoring; or

## Section 9: Reduced Monitoring

3. **Any water system** can automatically qualify for reduced monitoring if, during two consecutive six-month monitoring periods, their 90th percentile lead level is less than or equal to 0.005 mg/L and their 90th percentile copper level is less than 0.65 mg/L.

### ***Request for Reduced Monitoring***

A system requesting reduced lead and copper tap monitoring under criteria #3 for annual monitoring on the previous page or criteria #2 for triennial monitoring above shall submit that request to DEP. The request shall include:

1. A summary of lead and copper tap monitoring results, and
2. A summary of WQP monitoring results.

The results shall demonstrate that the system qualifies for reduced monitoring. DEP will review the information and notify the water supplier of its decision and the basis for that decision.

### ***Nine Year Lead and Copper Tap Monitoring Waiver***

A small system may apply to the department using the monitoring waiver application form to reduce the frequency of monitoring for lead or copper or both to once every 9 years. To qualify for this waiver, the system must meet **both** the materials criteria and monitoring criteria specified below:

#### **Materials Criteria:**

**For lead:** The system shall provide certification and supporting documentation to the department that the system (including distribution system, service lines, and all drinking water plumbing in residences and buildings) is free of all lead-containing materials as follows:

- It contains no plastic pipes or plastic service lines which contain lead plasticizers,  
AND
- It is free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fittings and fixtures, unless the fittings and fixtures meet the specification of any standard established under 42 U.S.C.A 300g-6(e) (relating to plumbing fittings and fixtures).

**For copper:** The system shall provide certification and supporting documentation to the department that the system contains no copper pipes or copper service lines.

## Section 9: Reduced Monitoring

### **Monitoring Criteria:**

The system shall have completed at least one 6-month period of lead and copper tap monitoring at the initial number of sites.

**For Lead:** The system's 90th percentile lead level does not exceed 0.005 mg/L for all rounds of monitoring conducted since the system became free of all lead-containing materials.

**For copper:** The system's 90th percentile copper level does not exceed 0.65 mg/L for all rounds of monitoring conducted since the system became free of all copper-containing materials.

### **Waiver Determination**

The supplier shall continue to monitor for lead and copper as required, until the system receives written notification from the department that the waiver has been approved.

The department will notify the system of its waiver determination, in writing, and any condition of the waiver.

The waiver will be renewed automatically if the requirements below are met.

### **Waiver Requirements**

The supplier shall:

- Conduct tap water monitoring for the contaminant waived at the reduced number of sites at least once every 9 years.
- Provide the materials certification for the contaminant(s) waived along with the monitoring results.
- Monitor for any nonwaived contaminants at least once every three years.
- Notify the department, in writing, within 60 days after becoming aware that the system is no longer free of lead-containing or copper-containing materials because of new construction or repair.

### **Waiver Revocation**

A waiver is revoked when any of the following occur:

- A system with a lead waiver no longer satisfies the materials criteria or has a 90th percentile lead level greater than 0.005 mg/L.
- A system with a copper waiver no longer satisfies the materials criteria or has a 90th percentile copper level greater than 0.65 mg/L.

## Section 9: Reduced Monitoring

- The department notifies the system, in writing, that the waiver has been revoked.

A water system whose waiver has been revoked is required to do the following:

- If the system exceeds the lead or copper action level(s), the system shall begin the compliance milestones required for corrosion control treatment.
- If the system meets both the lead and copper action levels, the system shall monitor for lead and copper at the tap no less frequently than once every 3 years at the reduced number of sample sites.

A system whose waiver has been revoked may reapply for a waiver when it again meets the appropriate materials criteria and 90th percentile levels.

### ***Sample Sites***

Systems that qualify for reduced monitoring shall collect their samples from the targeted pool of sampling sites identified in their sample site location plan. Systems must maintain the initial ratio of tier 1, tier 2 or 3 sites.

### ***Timing***

Systems sampling annually or triennially shall conduct the lead and copper tap sampling **between June 1 and September 30**. The department may approve a different 4-month period that represents a time of normal operation when the highest levels of lead are most likely to occur.

Triennial monitoring shall be conducted during the last year of each three-year compliance period (i.e., **1998, 2001, 2004, and so forth**).

Monitoring every nine years shall be conducted during the last year of each nine-year compliance cycle (i.e., **2010, 2019, 2028, and so forth**)

**NOTE: When a small or medium system with a reduced lead and copper tap monitoring frequency (annual or triennial) exceeds either the lead or copper action level, the system must also collect WQPs by November 30th since that is the end of the six-month monitoring period which began on June 1st.**

### ***Reduced Lead and Copper Tap Monitoring Revocation***

A system must return to six-month monitoring periods at the original number of sampling sites if:

1. A large water system fails to meet the lead or copper action level during any 4-month monitoring period (i.e., annual or triennial) **OR** fails to operate within the range of performance requirements for the WQPs on more than any 9 days in any 6-month monitoring period; or

## Section 9: Reduced Monitoring

2. A small or medium water system fails to meet the lead or copper action level during any 4-month monitoring period (i.e., annual or triennial) **OR** a small or medium water system with corrosion control treatment (CCT) fails to operate within the range of performance requirements for the WQPs on more than any 9 days in any 6-month monitoring period.

**NOTE:** Small and medium systems that have not installed CCT and no longer qualify for reduced lead and copper monitoring are not required to resume six-month lead and copper tap monitoring. Instead, they are required to follow the compliance milestones under Section 5. They can still conduct special monitoring (Section 3) prior to initiation of construction of CCT.

### B. WATER QUALITY PARAMETER MONITORING

**All large water systems** that maintain the range of values for WQP performance requirements reflecting OCCT during each of two consecutive six-month monitoring periods may collect distribution samples from the **reduced number of sites** during subsequent six-month monitoring periods as follows:

REDUCED MONITORING FOR WATER QUALITY PARAMETERS	
System Size	No. of Sampling Sites
>100,000	10
50,001 to 100,000	7

**All large water systems** that maintain the range of values for WQP performance requirements reflecting OCCT during three consecutive years of monitoring at the reduced number of sites may reduce the frequency with which it collects sets of **WQP distribution samples** from every six months to **annually**. A system conducting annual sampling shall collect these sets of samples evenly throughout the year to reflect seasonal variability.

A large system may reduce the frequency with which it collects sets of **WQP distribution samples** to **every 3 years** if during two consecutive monitoring periods:

- the 90th percentile lead level is less than or equal to 0.005 mg/L; AND
- the 90th percentile copper level is less than or equal to 0.65 mg/L; AND
- system maintains the range of values for the water quality parameter performance requirements.

**WQP monitoring at the entry points is not eligible for reduced monitoring.**

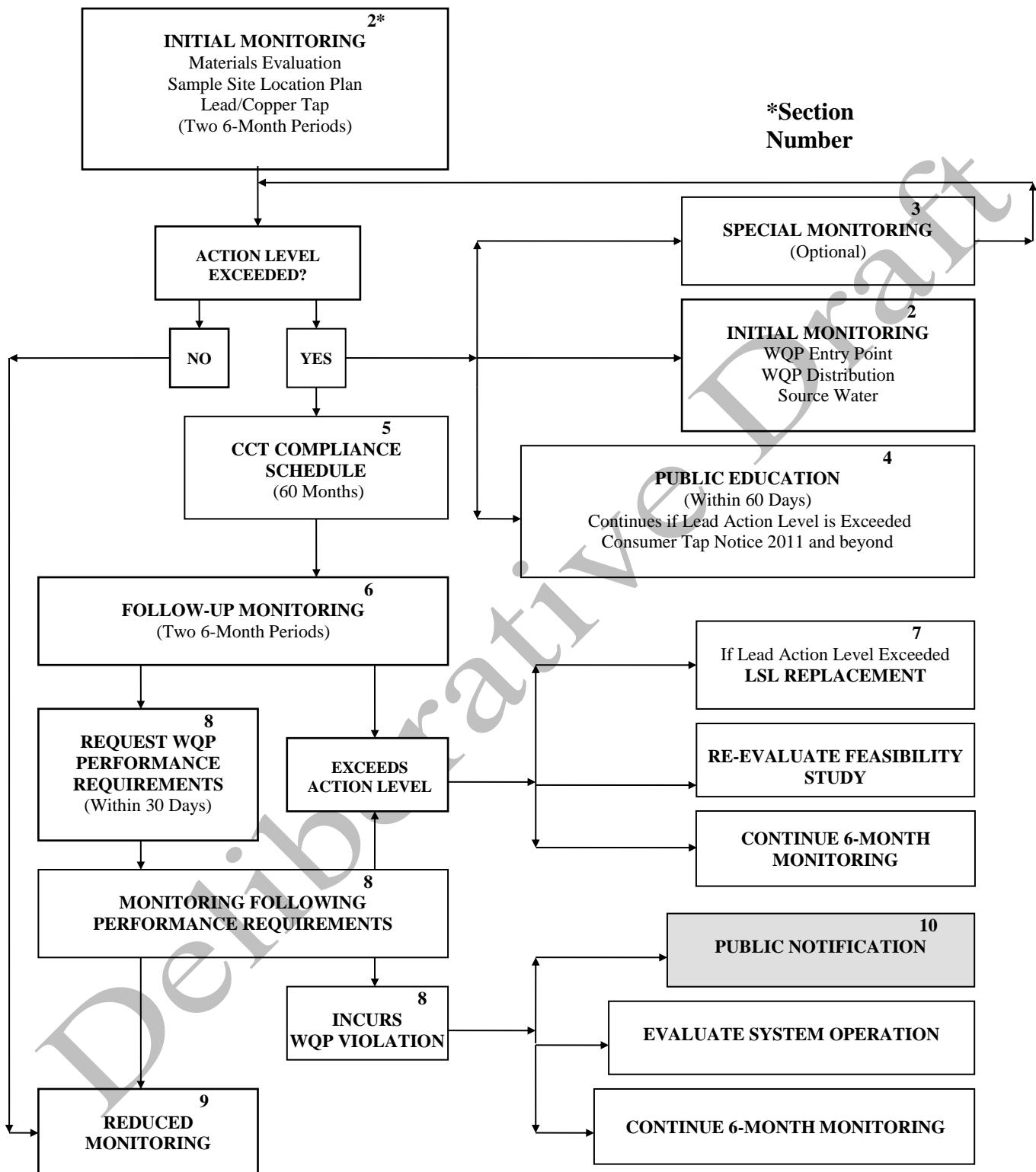
#### ***Reduced Water Quality Parameter Monitoring Revocation***

A large water system must return to six-month monitoring periods at the original number of sampling sites if a large water system fails to operate within the range of performance requirements for the WQPs on more than any 9 days in any 6-month monitoring period.

However, a large system may resume annual monitoring and triennial monitoring as soon as they qualify for each of these reduced monitoring levels.

## Section 10: Public Notification

### 10. PUBLIC NOTIFICATION



**NOTE:** Small and medium systems can qualify for reduced monitoring at any time by not exceeding the lead and copper action levels during two consecutive six-month monitoring periods.

**A. PUBLIC NOTIFICATION REQUIREMENTS**

A water system shall give public notification when one of the following occurs:

1. The water system fails to perform monitoring and analyses as required by the Lead and Copper Rule; or
2. The water system is not in compliance with a treatment technique requirement.

Public notification shall be given in accordance with Subchapter D in 25 Pa. Code Chapter 109.

## Section 11. System Management Responsibilities

### 11. SYSTEM MANAGEMENT RESPONSIBILITIES

#### A. REPORTING AND RECORDKEEPING

##### Sample Site Location Plan

The system shall prepare a sample site location plan, maintain the plan on record and present or submit the plan upon request to the department. The system shall update the following information in the plan within the first 10 days following the end of each applicable monitoring period:

- Selection of different lead and copper tap sample sites sampled during previous monitoring periods and corresponding site selection justification;
- Changes in water quality parameter (WQP) distribution or entry point site selection or source water entry point site selection from sites sampled during previous monitoring periods; and
- An update of the sample procedure certification.

##### Reporting of Monitoring Results

- The water system shall assure that the lead and copper tap and source water monitoring results are reported to the department within the first 10 days following the end of the applicable monitoring period. For systems with a reduced lead and copper tap frequency (annual or triennial), the end of the monitoring period is September 30th.
- The water supplier shall complete a WQP operational report for each 6-month monitoring period that WQP monitoring is conducted. The supplier shall submit this report to the local DEP office no later than 10 days following the end of the 6-month monitoring period.

##### CCT Reporting Requirements

A water system demonstrating OCCT shall submit information sufficient for the department to evaluate and determine whether optimal treatment has been achieved.

A large water system was required to shall complete a CCT feasibility study and submit the study to the department by June 30, 1994. A large system may be required to submit a new feasibility study if there are significant changes to source water quality or treatment processes.

A small or medium water system required to complete a CCT feasibility study shall submit the study to the department within 18 months of exceeding an action level.

Upon completion of construction or modification of CCT the water system shall submit to the department a certification of construction.

## Section 11. System Management Responsibilities

Upon completion of follow-up monitoring, the water system shall submit to the department a request for designation of OCCT performance requirements.

### ***PE Reporting Requirements***

(See PE Section 4)

### ***LSL Replacement Reporting Requirements***

(See LSL Section 7)

## **B. OPERATION AND MAINTENANCE (O&M) PLAN**

A community water system which completes construction or modification of CCT facilities shall include in its O&M plan information concerning the new or modified CCT.

A nontransient noncommunity water system which completes construction or modification of CCT facilities shall develop an O&M plan for the facilities.

The O&M plan for CCT facilities shall contain at least the following information:

- A description of the facilities;
- An explanation of startup and normal operation procedures;
- A routine maintenance program;
- A records and reporting system;
- Sampling and analysis program;
- Staffing and training;
- A safety program;
- An emergency plan and operating procedures; and
- Manufacturers' manuals.

## Section 11. System Management Responsibilities

### C. OPERATOR CERTIFICATION

Community water systems and nontransient noncommunity water systems which are required to construct or modify CCT facilities shall comply with the requirements under §109.704 (relating to operator certification). Specifically:

Require personnel to be certified under the Sewage Treatment Plant and Waterworks Operators' Certification Act with an appropriate class and subclass 7 (corrosion control and sequestering).

### D. LSL REPLACEMENT

(See LSL Section 7)