

# Grading Rule Bonus Points

(Management Plans & Assessment and Maintenance Programs)

Presented by:

**John Williams, P.E.**

Deputy Chief – Field Operations

Districts 1 & 2

September, 2022



# Community Water System Accountability Rule

Act 98 of 2021 Legislative Session (R.S. 40:5.9 and 5.9.1)

Final rule published April 20, 2022 Louisiana Register

(LAC 51:XII Chapter 4)

## Also referred to as **The Grading Rule**

Requires LDH to establish an accountability process for community water systems based on these seven standards.

- 1/31/2023 – CWSs submit<sup>1</sup> rate study<sup>2</sup>, annual report and financial report or audit report, flushing plan, complaint log, **extra credit**, etc.;

<sup>1</sup>To: Water.Grade@la.gov

<sup>2</sup>Rate Study must be dated April 20, 2017 or after.

Extra Points		10
For an asset management plan; storage assessment & maintenance program; or well assessment & maintenance program	5	
For participation in a capacity development program or management training program	5	

Scale	
Letter Grade	Point Value
A	≥ 90
B	80 - 89
C	70 - 79
D	60 - 69
F	≤ 59

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1. Asset Management Plan

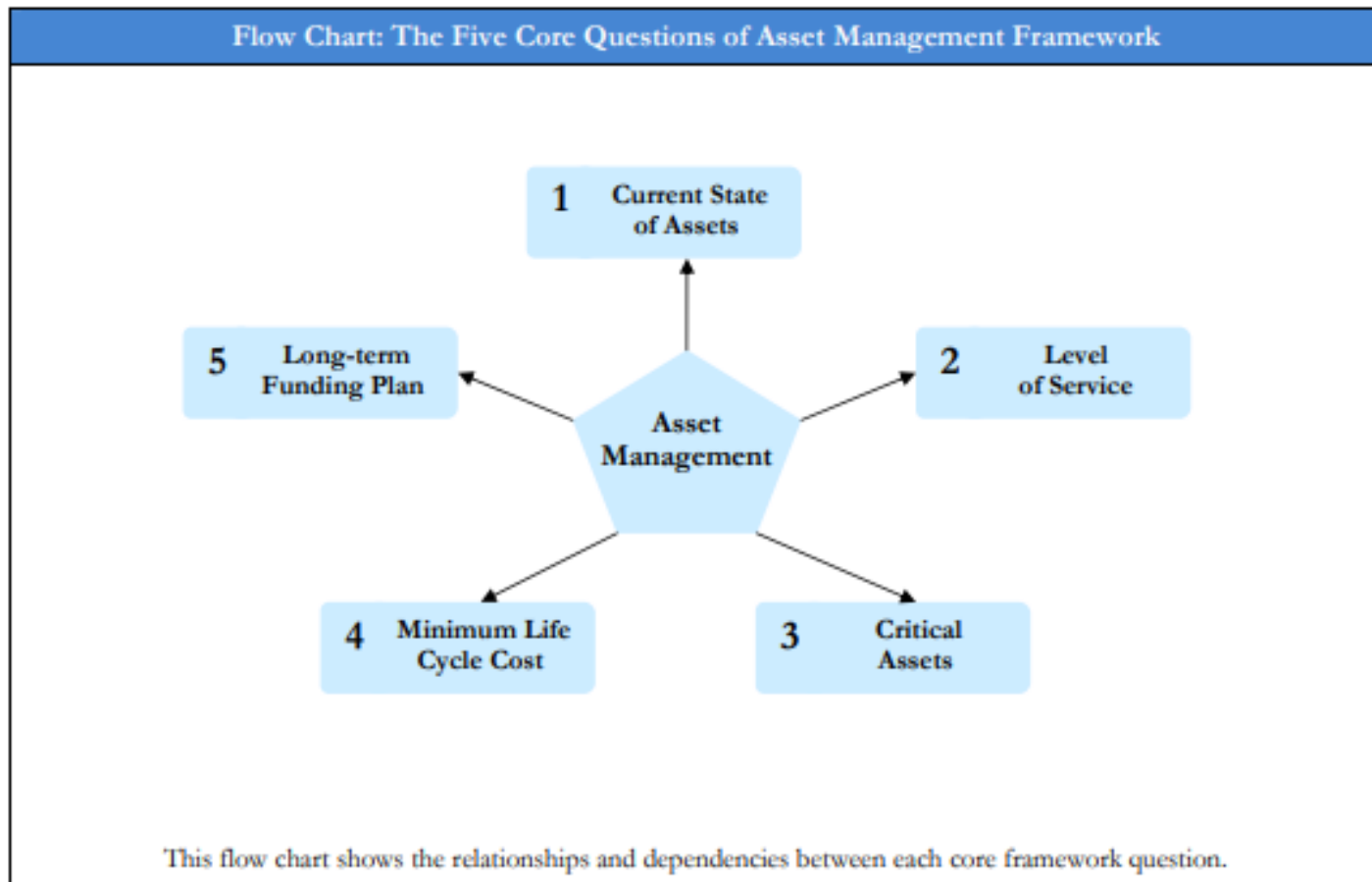
2. Storage Assessment and Maintenance Program

3. Well Assessment and Maintenance Program

# 1. Asset Management Plan

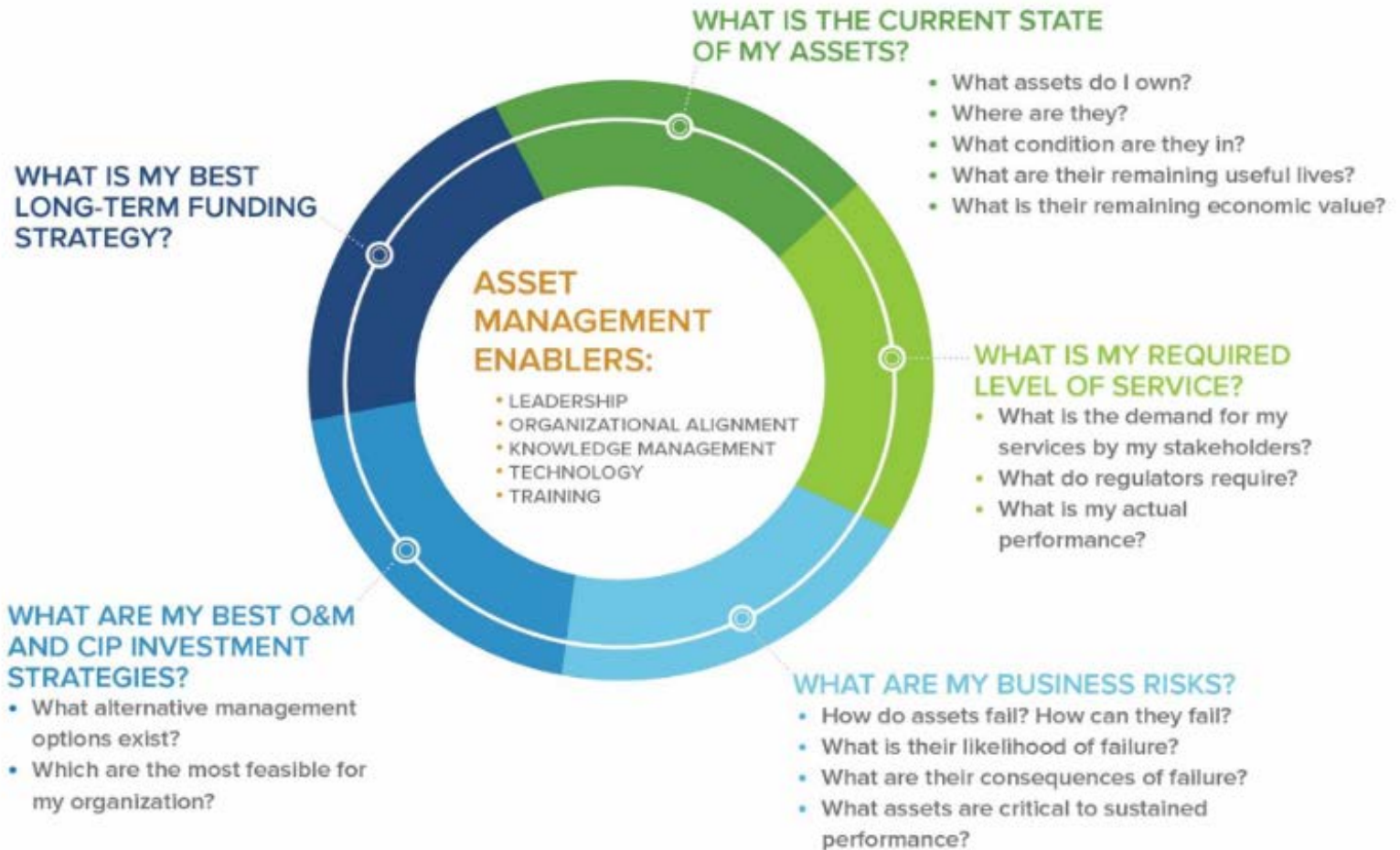
What is it?

**Asset management** is maintaining a desired level of service for what you want your assets to provide at the lowest life cycle cost. Lowest life cycle cost refers to the best appropriate cost for rehabilitating, repairing or replacing an asset. Asset management is implemented through an **asset management program** and ~~typically~~ includes a written **asset management plan**.



Source – “Asset Management: A Best Practices Guide”, Best Management Office of Water (4606M) EPA 816-F-08-014  
www.epa.gov/safewater April 2008

# OVERVIEW OF ASSET MANAGEMENT PLANNING



Source – AWWA <https://www.awwa.org/Resources-Tools/Resource-Topics/Asset-Management>

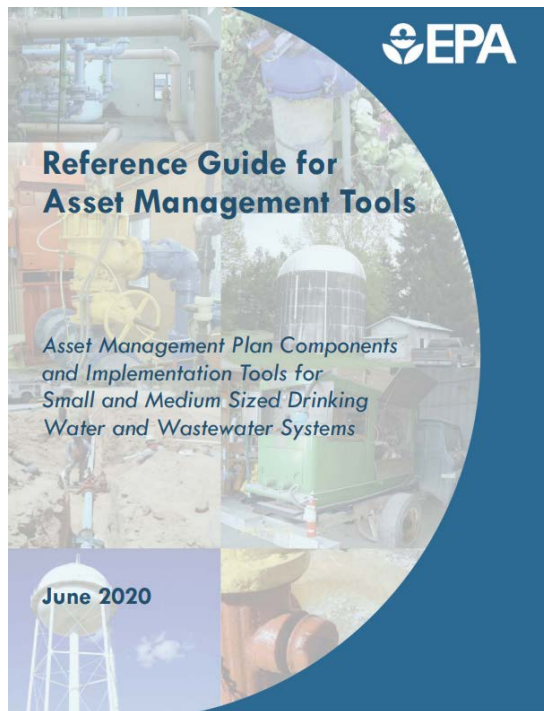
# Asset Management Plan - Resources

- **EPA**
  - ✓ Reference Guide for Asset Management Tools
  - ✓ Asset Management: A Best Practices Guide
  - ✓ Asset Management: A Handbook for Small Water Systems
  
- **AWWA**
  - ✓ Website

# Reference Guide for Asset Management Tools

[Reference Guide for Asset Management Tools \(pdf\)](#)

This document is for state staff and technical assistance providers. It is to help assist small and medium sized drinking water or wastewater systems in identifying resources that can be used to implement asset management practices. The guide provides a framework to assist systems in all aspects of developing and implementing an asset management plan.



The image is a screenshot of the EPA website. At the top is the EPA logo and the text "United States Environmental Protection Agency". To the right is a search bar with the text "Search EPA.gov". Below this is a navigation bar with links: "Environmental Topics", "Laws &amp; Regulations", "Report a Violation", and "About EPA". The main heading is "Building the Capacity of Drinking Water Systems" with a "CONTACT US" link. On the left is a sidebar with links: "Building the Capacity of Drinking Water Systems Home", "About Capacity Development", "About Operator Certification", "About Water System Partnerships", and "About Asset Management". The main content area has the heading "Asset Management Resources for States" and a section "On this page:" with three bullet points: "Reference Guide for Asset Management Tools", "America's Water Infrastructure Act of 2018 (AWIA)", and "2012 and 2018 State Asset Management Initiatives Document".

<https://www.epa.gov/dwcapacity/asset-management-resources-states>



epa asset management plans for PWS



# Section 1

## SECTION 1: COMPONENTS OF AN ASSET MANAGEMENT PLAN

Based on input from the EPA/State Asset Management Workgroup, EPA has identified the following components of an asset management plan:

### Introduction

#### Component Description

The *Introduction* component should provide the reader the necessary context for the asset management plan (e.g., system overview) and help explain the system's goals.

This component of the asset management plan should:

- ✓ Identify the purpose(s) of the plan.
- ✓ Present the system's strategic plan and mission statement, which define the goals of the system and frame the level of service discussion.
- ✓ Provide a general overview of the system and its facilities, including general system design, water usage, population served (current and projected), water sources, etc.
- ✓ Broadly explain how the system approaches asset management, such as a brief description of tools used for implementation of specific practices.



#### EPA, *Asset Management: A Best Practices Guide*

- The **Challenges Faced by Water Systems/Benefits of Asset Management** Table explains how asset management can help systems overcome many challenges to operating a water system and can help systems to identify the purpose and goals of their plan.
- Visit: <http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P1000LP0.txt>



#### EPA, *Asset Management: A Handbook for Small Water Systems*

- The **How Can Asset Management Help Me?** Section, as well as the **How Does Asset Management Relate to Strategic Planning?** Section explains the benefits of implementing an asset management plan for a small water system.
- The **What is the Asset Management Process?** Section describes the 5 main steps to an Asset management plan.
- Visit: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100U7T2.txt>



#### EPA, *Strategic Planning: A Handbook for Small Water Systems*

- **Step 1: Developing a Strategic Roadmap** includes a **Defining Your Ideal, Goals, and Values Worksheet** that provides examples of ideals, goals and values for systems to use in developing a strategic roadmap.
- **Step 2: Defining Your Area of Service** guides systems to begin to define their area of service. The **Current and Future Areas of Service Worksheet** helps systems outline their service area(s) and provides space for systems to define their current and future roles.
- Visit: <http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=2000ITPU.txt>



## Asset Management: A Best Practices Guide



Introduction	
Purpose	This guide will help you understand: <ul style="list-style-type: none"> <li>• What asset management means.</li> <li>• The benefits of asset management.</li> <li>• Best practices in asset management.</li> <li>• How to implement an asset management program.</li> </ul>
	Target Audience
This guide is intended for owners, managers, and operators of water systems, local officials, technical assistance providers, and state personnel.	

Asset Management
Asset management is maintaining a desired level of service for what you want your assets to provide at the lowest life cycle cost. Lowest life cycle cost refers to the best appropriate cost for rehabilitating, repairing or replacing an asset. Asset management is implemented through an asset management program and typically includes a written asset management plan.

Challenges faced by Water Systems	Benefits of Asset Management
<ul style="list-style-type: none"> <li>• Determining the best (or optimal) time to rehabilitate/repair/replace aging assets.</li> <li>• Increasing demand for services.</li> <li>• Overcoming resistance to rate increases.</li> <li>• Diminishing resources.</li> <li>• Rising service expectations of customers.</li> <li>• Increasingly stringent regulatory requirements.</li> <li>• Responding to emergencies as a result of asset failures.</li> <li>• Protecting assets.</li> </ul>	<ul style="list-style-type: none"> <li>• Prolonging asset life and adding to rehabilitate/repair/replace aging assets through efficient and focused operations and maintenance.</li> <li>• Meeting customer demands with a focus on system sustainability.</li> <li>• Setting rates based on sound operational and financial planning.</li> <li>• Budgeting focused on activities critical to sustained performance.</li> <li>• Meeting service expectations and regulatory requirements.</li> <li>• Improving response to emergencies.</li> <li>• Improving security and safety of assets.</li> </ul>

Implementing Asset Management: Five Core Questions Framework
A good starting point for any size water system is the five core questions framework for asset management. This framework walks you through all of the major activities associated with asset management and can be implemented at the level of sophistication reasonable for a given system. These five core framework questions provide the foundation for many asset management best practices. Several asset management best practices are listed for each core question on the following pages. Keep in mind that these best practices are constantly being improved upon.




## Asset Management: A Handbook for Small Water Systems

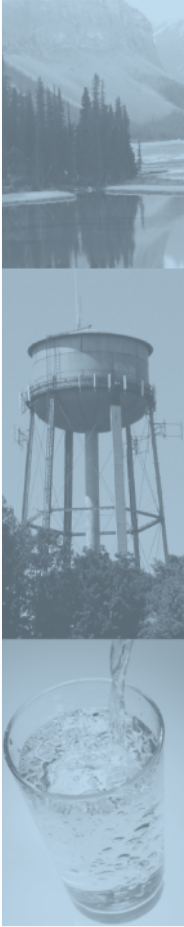
One of the Simple Tools for Effective Performance (STEP) Guide Series



# EPA's Asset Management: A Best Practices Guide



## Asset Management: A Best Practices Guide



Introduction	
<i>Purpose</i>	<p>This guide will help you understand:</p> <ul style="list-style-type: none"> <li>What asset management means.</li> <li>The benefits of asset management.</li> <li>Best practices in asset management.</li> <li>How to implement an asset management program.</li> </ul>
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Challenges faced by Water Systems	Benefits of Asset Management
<ul style="list-style-type: none"> <li>Determining the best (or optimal) time to rehabilitate/repair/replace aging assets.</li> <li>Increasing demand for services.</li> <li>Overcoming resistance to rate increases.</li> <li>Diminishing resources.</li> <li>Rising service expectations of customers.</li> <li>Increasingly stringent regulatory requirements.</li> <li>Responding to emergencies as a result of asset failures.</li> <li>Protecting assets.</li> </ul>	<ul style="list-style-type: none"> <li>Prolonging asset life and aiding in rehabilitate/repair/replacement decisions through efficient and focused operations and maintenance.</li> <li>Meeting consumer demands with a focus on system sustainability.</li> <li>Setting rates based on sound operational and financial planning.</li> <li>Budgeting focused on activities critical to sustained performance.</li> <li>Meeting service expectations and regulatory requirements.</li> <li>Improving response to emergencies.</li> <li>Improving security and safety of assets.</li> </ul>

Implementing Asset Management: Five Core Questions Framework
<p>A good starting point for any size water system is the five core questions framework for asset management. This framework walks you through all of the major activities associated with asset management and can be implemented at the level of sophistication reasonable for a given system. These five core framework questions provide the foundation for many asset management best practices. Several asset management best practices are listed for each core question on the following pages. Keep in mind that these best practices are constantly being improved upon.</p>

Plan Ahead: The Five Core Questions of Asset Management Framework



The flow chart shows the relationship and dependencies between the five core framework questions.

1. What is the maintenance of your system's need?

The first step in managing your water system is determining what assets exist. Before any of this information may be utilized in fact, you should use estimates when necessary. Over time, as assets are substantially repaired or replaced, your estimates will become more accurate.

*You should ask:*

- What do I own?
- What is it?
- What is its condition?
- What is its utility?
- What is its value?

*Best practices include:*

- Preparing an asset inventory and system map.
- Developing a condition assessment and rating system.
- Assessing existing and future condition, projected useful life, utility or doing costs.
- Determining asset value and replacement costs.

2. Which assets are critical to sustained performance?

Assets are those that have an impact on the performance of the system. Some assets may provide the same value, but it is equally critical to your water system's operation. Therefore, it is important to know which assets are required to maintain your water system's performance. Critical assets are those you decide have a high risk of failing with poor condition, and major consequences if they do fail (major exposure, system failure, safety concerns, etc.). You can decide how critical each asset is and rank them accordingly. Many water systems may have already accomplished this type of ranking in vulnerability assessments.

*You should ask:*

- How can assets fail?
- How do assets fail?
- What are the likelihood (probability) and consequences of asset failure?
- What does it cost to replace the asset?
- What are the other costs (social, environmental, etc.) that are associated with asset failure?

*Best practices include:*

- A listing assets according to how critical they are to system operations.
- Conducting a failure analysis (from cause analysis, failure mode analysis).
- Estimating the probability of failure and listing assets by failure type.
- Analyzing failure risk and consequences.
- Using worst-case scenarios.
- Assessing and ranking your system's vulnerability assessment of your system (see page 10).

3. Determine your system's financial future: Your system's financial future can help you decide what changes need to be made to meet current and long-term funding needs.

*You should ask:*

- Do we have enough funding to maintain our assets for our anticipated level of service?
- Is our rate structure sustainable for our current and long-term needs?

*Best practices include:*

- Revising the rate structure.
- Funding a dedicated source from current revenues (e.g., creating an asset fund).
- Financing asset rehabilitation, repair, and replacement through borrowing or other financial resources.

Implementing Asset Management: Follow-up and Continuing Steps

The five core questions framework for asset management is the starting point for asset management. Asset planning and management should be implemented to achieve continual improvement through a series of "Plan, Do, Check, Act" steps.

- Plan: Plan core questions framework (short-term), asset management plan (long-term).
- Do: Implement asset management program.
- Check: Evaluate progress, changing forces and new best practices.
- Act: Take action based on system results.

For additional information: Call the Safe Drinking Water Hotline at 1-800-455-6771, visit the EPA's Web site at [www.epa.gov/safewater](http://www.epa.gov/safewater), or contact your state drinking water representative.

U.S. EPA 816-F-08-014
EPA 816-F-08-014
www.epa.gov/safewater

April 2008

"Asset Management: A Best Practices Guide", Best Management Office of Water (4606M) EPA 816-F-08-014  
[www.epa.gov/safewater](http://www.epa.gov/safewater) April 2008

10



Step #1 – How Do I Inventory My Assets? .....  
     Introduction to the System Inventory Worksheet .....  
     *EXAMPLE* System Inventory Worksheet .....  
 Step #2 – How Do I Prioritize My Assets? .....  
     Introduction to the Prioritization Worksheet .....  
     *EXAMPLE* Prioritization Worksheet .....  
 Step #3 – How Do I Plan for the Future? .....  
     Introduction to the Required Reserve Worksheet .....  
     *EXAMPLE* Required Reserve Worksheet .....  
 Step #4 – How Do I Carry Out This Plan? .....  
     Introduction to the Budgeting Worksheet .....  
     *EXAMPLE* Budgeting Worksheet .....  
 Step #5 – What Should I Do Next? .....

**Provides Worksheets with completed examples:** System Inventory Worksheet, Prioritization Worksheet, Required Reserve Worksheet, Budgeting Worksheet

[illegible]

Example System Inventory Worksheet						
Date Worksheet Completed/Updated: 8/19/02						
Asset	Expected Useful Life	Condition	Service History	Adjusted Useful Life	Age	Remaining Useful Life
Well 1 (1993)	30	Good		30	9	21
Well 1 pump	10	Good	Rehab (1996)	10	9	1
Well 2 (1993)	30	Good		30	9	21
Well 2 pump	10	Good	Rehab (1998)	10	9	1
Pumphouse (1993)	30	Good		30	9	21
Electrical components	10	Some corrosion	Rehab (1994)	10	9	1
Chlorinator (1993)	10	Good	Rehab (1998)	5	3	2
Storage tank 1 (1993)	40	Good	Rehab (2000) - \$17,000	40	9	31
Storage tank 2 (1993)	40	Good	Rehab (2000) - \$17,000	40	9	31
Storage tank 3 (2000)	40	Almost new		40	2	38
Distribution Systems						
Hydrants (15)	40	Unknown		40	9	11
Valves (95)	40	Unknown	6 valves don't work	40	9	11
6-inch PVC	60	Unknown		60	9	51
4-inch PVC	60	Unknown		60	9	51
2-inch PVC	60	Unknown	Repair breaks (2/year)	60	9	51



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<https://www.awwa.org/Resources-Tools/Resource-Topics/Asset-Management>

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F	≤ 59

1. Asset Management Plan
2. Storage Assessment and Maintenance Program
3. Well Assessment and Maintenance Program

## 2. Storage Assessment and Maintenance Program

What is it?

**Formal documentation addressing how the system assesses and maintains its finished water storage tanks, including references to all applicable codes and standards that must be followed.**



- **Inspections** - Examples of what the program would document include, but are not limited to:
  - ✓ Inspection type (routine vs. comprehensive, interior and exterior, etc.) and frequency
  - ✓ Who can perform the inspection(s), and required qualifications
  - ✓ Checklists/Documentation/Reports
- **Maintenance** - Storage facility maintenance activities include cleaning, painting, and repair to structures to maintain serviceability. The program would document the standards that must be followed relevant to disinfection procedures and approval of coatings. Examples include, but are not limited to:
  - ✓ ANSI/NSF Standard 61
  - ✓ AWWA Manuals and Standards

# Resources

## Storage Assessment and Maintenance Program

### ■ EPA

- ✓ “Finished Water Storage Facilities”, August 15, 2002  
Section 3.3 Tank Inspections  
Section 3.4 Maintenance Activities

### ■ AWWA

- ✓ AWWA Manual M42, Steel Water Storage Tanks (Revised Edition) (Recommends that tanks be drained and inspected at least once every 3 years)
- ✓ D101-53(R79): AWWA Standard for Inspecting and Repairing Steel Water Tanks, Standpipes, Reservoirs, and Elevated Tanks for Water Storage



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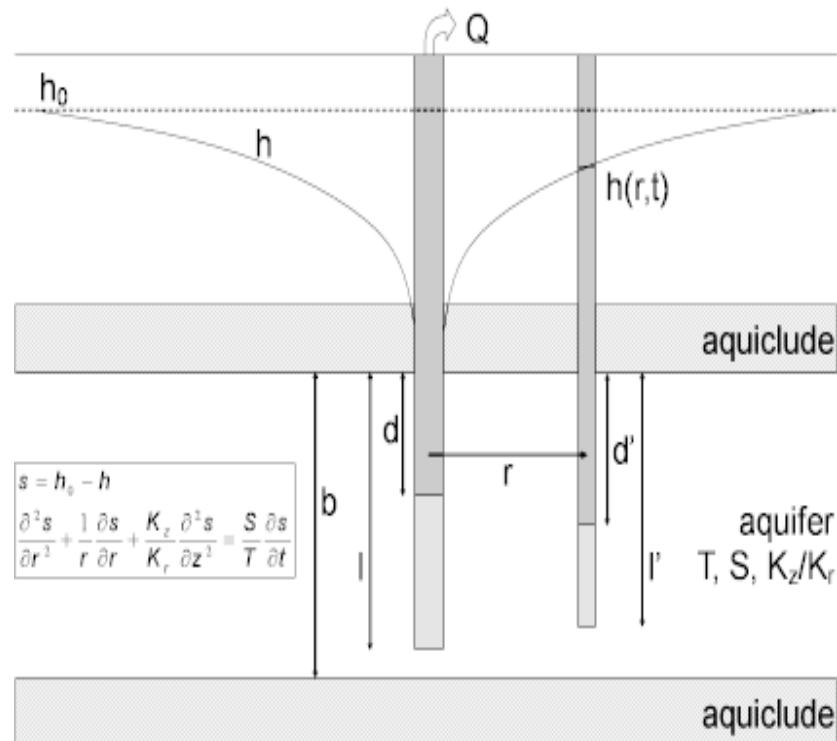
### 3. Well Assessment and Maintenance Program

What is it?

**Formal documentation addressing how the system assesses and maintains its well(s), including references to all applicable codes and standards that must be followed.**

## Pumping Tests

Well-performance tests, pumping tests and “yield and drawdown” tests are all designations for a field experiment (here-in-after referred to as pumping test) in which a well is pumped at a controlled rate and water-level response (drawdown) is measured in the well and/or one or more surrounding observations wells.



Pumping tests performed after the well is placed into operation provide the operator (and the surveyor) with data that can be used to assess the performance of the well, and the need for well rehabilitation.

LDH recommends that pumping tests be performed on all community wells and non-community wells serving a hospital at a frequency of not less than once every two (2) years.

# Resources

## Well Assessment and Maintenance Program

### ■ EPA

- ✓ Ground Water Issue, Suggested Operating Procedures for Aquifer Pumping Tests, EPA/540/S-93/503, February 1993

### ■ AWWA

- ✓ A100-97: AWWA Standard for Water Wells

### ■ ASTM

- ✓ ASTM D4050 – Standard Test Method for (Field Procedure) for Withdrawal and Injection Well Testing for Determining Hydraulic Properties of Aquifer Systems
- ✓ ASTM D4106 - Standard Test Method for (Analytical Procedure) for Determining Transmissivity and Storage Coefficient of Nonleaky Confined Aquifers by the Theis Nonequilibrium Method
- ✓ ASTM D4043 - Standard Guide for Selection of Aquifer Test Method in Determining Hydraulic Properties by Well Techniques

- 1/31/2023 – CWSs submit<sup>1</sup> rate study<sup>2</sup>, annual report and financial report or audit report, flushing plan, complaint log, extra credit, etc.;

<sup>1</sup>To: Water.Grade@la.gov

<sup>2</sup>Rate Study must be dated April 20, 2017 or after.

# January 31, 2023



**International Zebra Day**



**National Backward Day**

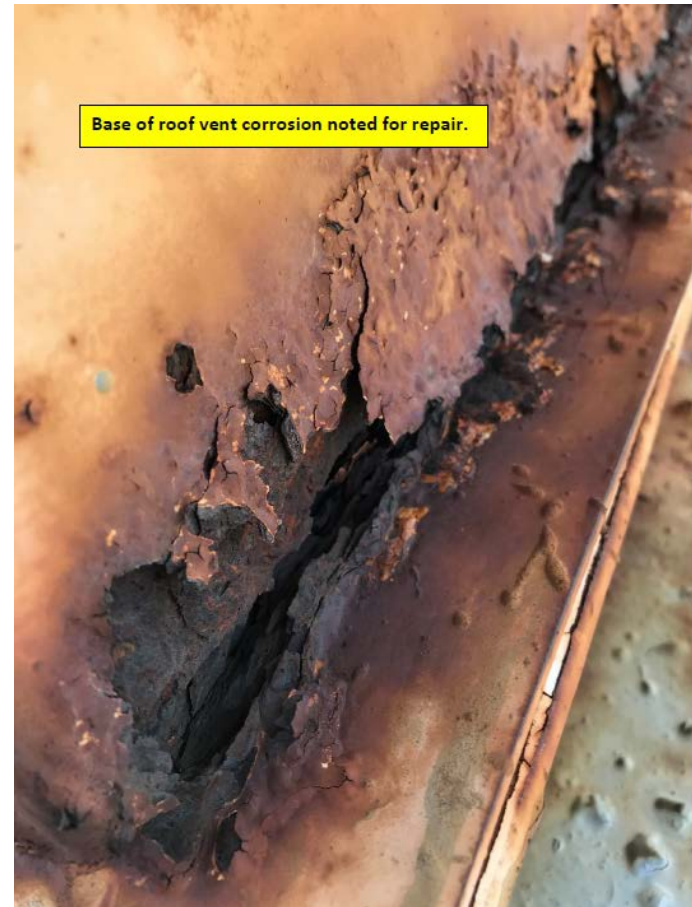
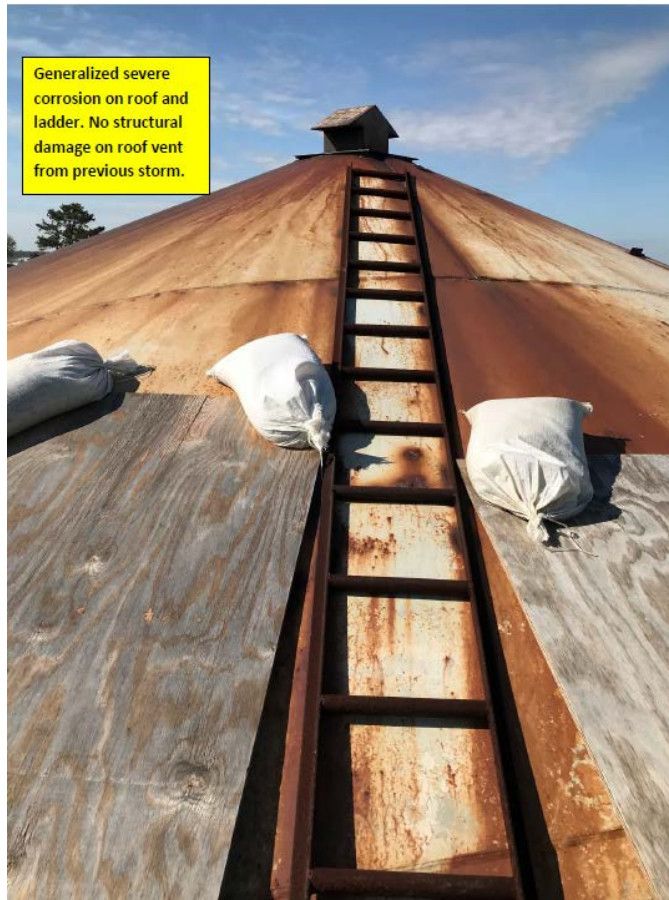


**National Hot Chocolate Day**



**National Plan for Vacation Day**

**Having and adhering to a Management Plan or Assessment and Maintenance Program will help with your grade; it will also reduce compliance risks and increase customer value!** Assets need scheduled inspection and attention, or they may just become liabilities!



Groundwater Storage Tank



# Groundwater Storage Tank





# Piping



## Hydropneumatic Storage Tank – Catastrophic failure



# Groundwater Storage Tank





# Clarifier



# Valves



# Distribution Systems



# LDH - Safe Drinking Water Program

Chief Engineer:

[Amanda.Ames@la.gov](mailto:Amanda.Ames@la.gov) 225-342-8138

Deputy Chief Engineers:

[Caryn.Benjamin@la.gov](mailto:Caryn.Benjamin@la.gov) 225-342-6157

[Jennifer.Kilhken@la.gov](mailto:Jennifer.Kilhken@la.gov) 337-475-3231

[John.Williams@la.gov](mailto:John.Williams@la.gov) 504-599-0112

## Region 6, 7 & 8

District Engineer:

[Barbara.Featherston@la.gov](mailto:Barbara.Featherston@la.gov)

318-676-7477

[D4Safe.Water@la.gov](mailto:D4Safe.Water@la.gov)

## Region 4 & 5

District Engineer:

[Steven.Joubert@la.gov](mailto:Steven.Joubert@la.gov)

[v](#)

337-475-3214

[D3Safe.Water@la.gov](mailto:D3Safe.Water@la.gov)



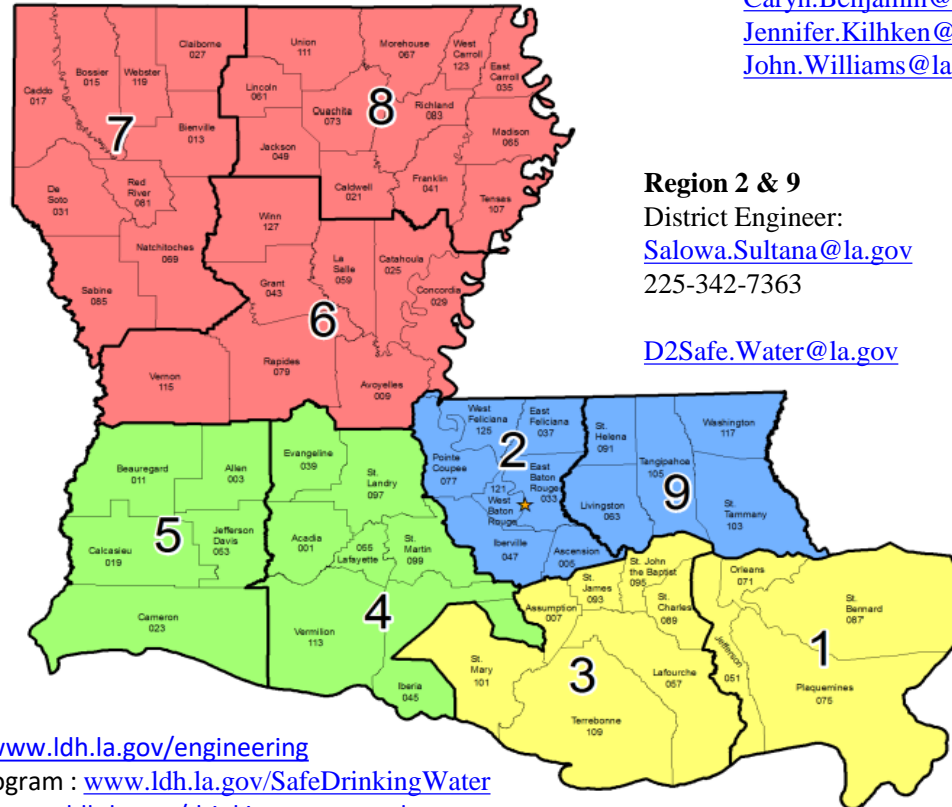
## Websites:

Engineering Services : [www.ldh.la.gov/engineering](http://www.ldh.la.gov/engineering)

Safe Drinking Water Program : [www.ldh.la.gov/SafeDrinkingWater](http://www.ldh.la.gov/SafeDrinkingWater)

Drinking Water Watch: [www.ldh.la.gov/drinkingwaterwatch](http://www.ldh.la.gov/drinkingwaterwatch)

Email: [Safe.Water@la.gov](mailto:Safe.Water@la.gov)



## Region 2 & 9

District Engineer:

[Salowa.Sultana@la.gov](mailto:Salowa.Sultana@la.gov)

225-342-7363

[D2Safe.Water@la.gov](mailto:D2Safe.Water@la.gov)

## Region 1 & 3

District Engineer:

[Alicia.Martinez@la.gov](mailto:Alicia.Martinez@la.gov)

[v](#)

504-599-1564

[D1Safe.Water@la.gov](mailto:D1Safe.Water@la.gov)