

**COMPREHENSIVE CORRECTIVE ACTION PLAN**  
**SOUTH HOPKINS WATER DISTRICT**  
**JUNE 2023**

**EXECUTIVE SUMMARY**

This report is in response to Kentucky Public Service Commission Order Case No. 2023-00018 which directed the South Hopkins Water District to develop a comprehensive corrective action plan to reduce unaccounted for water loss (UW) to 15%. The deadline for filing is June 12, 2023.

In 2017, South Hopkins Water operated with an annual UW of 17.68%. UW has been steadily on the rise since 2018 as a result of aging infrastructure and storage facilities. This plan will list specific corrective actions focused on improving and replacing infrastructure and increasing the operational loss reduction capacity of South Hopkins Water District. Major items of work will include replacement of oldest service lines, replacement of meters with radio-read meters, hiring of staff or contractors for leak detection, purchase of listening devices, and purchase of equipment needed to maintain daily operations and reduce repair times.

The goal is to reduce UW to 15% by 2027. In doing so, South Hopkins Water District hopes to achieve regulatory compliance, develop a sustainable operation, and provide the citizens of Hopkins County with a reliable source of water for decades to come.

**INTRODUCTION**

In February 2023, the Public Service Commission ordered South Hopkins Water District (SHWD) to prepare a comprehensive corrective action plan to reduce water loss.

For the calendar year 2022, the SHWD reported 36.5382% unaccounted water loss. The PSC has encouraged SHWD to reduce its unaccounted water loss (UW) to 15% annually. The goal of this corrective action plan is to reduce UW to 15% over the next four years.

## SYSTEM INFORMATION

SHWD was established in 1965 and is located at 129 South Main Street, Dawson Springs, Kentucky 42408. SHWD provides potable water service to approximately 7,919 customers in Hopkins County. SHWD is regulated by the Public Service Commission and Division of Water. SHWD is a distribution system and purchases all water for resale from the City of Dawson Springs Water System and City of Madisonville.

The sections below discuss SHWD existing lines, storage facilities, pump stations, meters, telemetry systems, staff, and equipment. The objective is to provide an overview of the system and identify potential sources of UW in the system.

### Lines

*Summary* – SHWD is composed of approximately 285 miles of transmission, distribution, and service line. The lines were installed from 1967 to 1995 and range in size from 16-inch diameter to 2-inch diameter. The types of lines include polyethylene (PE), polyvinyl chloride (PVC), cast iron (CI), asbestos cement (AC), and ductile iron (DI). The majority of line is composed of 6-inch and 8-inch AC.

*Potential Source of UW* – Improper installation, improper application, and environmental influence can shorten a water line's useful life. When lines were installed corp stops were drilled into AC lines with no saddles. Corp stops do not have gaskets; this causes leaks to occur much sooner in the life of a water line.

### Storage Facilities

*Summary* – SHWD has four (4) above ground storage facilities, including standpipes and elevated storage tanks. SHWD's total combined storage capacity is approximately 786,000 gallons. These facilities were installed between 1967 and 1995 with three (3) of the four (4) storage facilities installed in 1967.

*Potential Sources of UW* - The useful life of above ground storage facilities is approximately 40 years. Three (3) of the storage facilities in our system are 55 years old and one is 28 years old.

### Pump Stations

*Summary* – SHWD has six (6) pump stations. These pump stations are located in the areas of Highways 62E, 62W, 109, Grapevine area, Carbondale area, and Good Hope area.

*Potential Source of UW* – The maintenance of pump stations is an ongoing concern due to environmental issues.

### Meters

*Summary* – The SHWD system contains approximately 2944 meters including residential meters, commercial meters, and master meters. The types of meters vary as do the dates of installation. The following is a breakdown of the meters in the system based on application as of April 2023.

Meter Count	Application
2814	Residential
109	Commercial
19	Public
2	Industrial

*Potential Sources of UW* – Meter replacement is an ongoing project in accordance with Public Service Commission and Division of Water guidelines. Meters have varied useful life depending on size, type, application, and frequency of use. SHWD routinely checks meters and replaces/repairs them as needed.

### Telemetry

*Summary* – SHWD use telemetry/SCADA devices supplied by CI Thornburg Co. Devices are installed at three tanks and three pump systems locations and provide data to SHWD to a single server located at the district office. CI Thornburg Co. also provides the necessary software updates and services this equipment upon request.

*Potential Sources of UW* = Not applicable.

### Staffing

*Summary* – SHWD currently employs one (1) Superintendent and four (4) maintenance/labor staff. Maintenance of lines, meters, pump stations, vehicles, and equipment are currently done in house.

*Potential Source of UW* – Time spent operating SHWD daily consumes the majority of staff hours. This reduces time to locate leaks that are not immediately apparent.

### Equipment

*Summary* - SHWD currently owns one listening device for leak detection. SHWD also owns the following equipment that is used to sustain daily operations and perform routine maintenance.

Vehicles and Equipment	
Make/Model	Quantity
1995 Ford 555D Backhoe	1
2000 Ford F650 2-ton Truck	1
2006 Lox Max Trailer	1
2013 F150 Pickup Truck	1
2014 F150 Pickup Truck	2
2016 F150 Pickup Truck	1
100KW Diesel Generator	1
GenX 85W Generator	4
Ditch Witch Pusher Boring Machine	1
Listening Device	1
Meter Test Bench	1
Concrete Saws	4
Trash Pump	1
Inoperative Dump Truck	1
Miscellaneous Hand Tools	

*Potential Sources of UW* – Old unserviceable equipment can impair daily operations, inflate maintenance cost, reduce leak detection capabilities, increase repair times, and create an unsafe workplace. Some of the equipment listed above appears to be beyond its useful life and may no longer be safely operated.

## CORRECTIVE ACTIONS

1. Line Replacement – Continue with planning stage and implementation of project with Strand Engineering to replace service lines that were installed improperly in 1967 and have deteriorated by acidic level and rocky soil conditions when funding becomes available. Lines in 62E area are the oldest lines in the district and as a result water loss is the highest in that area.
2. Pump Stations – Perform routine maintenance to address UW due to aging and environmental issues with pump stations.
3. Radio Read Meters – Continue with planning stage and implement stage to replace all meters with radio read meters when funding becomes available. Radio read meters will allow for more time for SHWD staff to spend less time reading meters and more time focusing on repairing water leaks. Radio reads will also cut back on accidental misreads, which is more beneficial to the customer and to the water district.
4. Staffing & Contracting – Hire a part-time staff individual or contract out a company to detect leaks for the purpose of loss reduction.
5. Adequate Vehicle – Purchase F250, or equivalent, for Superintendent as his was destroyed in the 2021 tornado. A truck this size would allow for the superintendent to haul generators to pump stations during power outages and get to pump stations during inclement weather. There are not currently enough trucks for each employee.
6. Reliable Trucks – Purchase and replace aging pickups with high mileage when funding becomes available. By having a reliable pickup truck for every service staff, we have the ability to divide up and go to problem areas quicker and more efficiently. Current pickups are years 2013 with 200,000 miles, 2014 with 150,000 miles, 2014 with 140,000 miles, and 2016 with 100,000 miles.
7. Large Equipment – Urgent need to replace current backhoe when funding becomes available. The current backhoe incurred damage due to an accident in which a van ran into it after staff had repaired a water leak.
8. Other Equipment – Purchase additional listening devices and updated equipment to repair leaks when funding is available.

**ATTACHMENT  
PSC Order For  
CASE NO. 2023-00018**