

**COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

**ELECTRONIC APPLICATION OF THE )  
SIMPSON COUNTY WATER DISTRICT TO ISSUE SECURITIES IN )  
THE APPROXIMATE PRINCIPAL AMOUNT OF \$1,620,000 FOR ) CASE NO. 2021-00014  
THE PURPOSE OF REFUNDING AND )  
REAMORTIZING CERTAIN OUTSTANDING )  
OBILIGATIONS OF THE DISTRICT  
PURSUANT TO THE PROVISIONS OF KRS  
278.300 AND 807 KAR 5:001**

**RESPONSE OF**

**SIMPSON COUNTY WATER DISTRICT**

**TO**

**FILE A COMPREHENSIVE UNACCOUNTED FOR WATER LOSS REDUCTION PLAN**

**DATED SEPTEMBER 21, 2021**

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

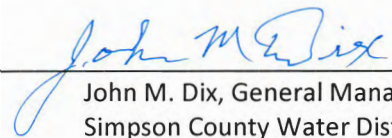
In the Matter of:

ELECTRONIC APPLICATION OF THE SIMPSON COUNTY )  
WATER DISTRICT TO ISSUE SECURITIES IN THE ) CASE NO. 2021-00014  
APPROXIMATE PRINCIPAL AMOUNT OF \$1,620,000 )  
FOR THE PURPOSE OF REFUNDING )  
AND REAMORTIZING CERTAIN OUTSTANDING )  
OBLIGATIONS OF THE DISTRICT PURSUANT TO THE )  
PROVISIONS OF KRS 278.300 AND 807 KAR 5:001 )

CERTIFICATION OF RESPONSE OF [WATER DISTRICT] TO COMMISSION STAFF'S INITIAL REQUEST FOR  
INFORMATION

This is to certify that I have supervised the preparation of Simpson County Water District's responses to Commission Staff's request for a comprehensive unaccounted-for water loss reduction plan. The plan was submitted on behalf of Simpson County Water District is true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

Date: 9/21/21

  
\_\_\_\_\_  
John M. Dix, General Manager  
Simpson County Water District

**SIMPSON COUNTY WATER DISTRICT  
WATER LOSS REDUCTION PLAN**

**PURPOSE**

On March 24, 2021, the Public Service Commission issued an Order in its Case No. 2021-00014 directing Simpson County Water District (“SCWD”) to submit an unaccounted-for water loss reduction plan. The order referenced water loss of 20.1073% reported in SCWD’s 2019 Annual Report.

**BACKGROUND**

As of August 31, 2021, SCWD provides water service to 3,548 (3,157 residential customers and 391 commercial customers) through 402 miles of distribution main. SCWD pumps 1,042,100 gallons per day and purchases water from White House Utility District. SCWD’s system is divided into ten (10) district metered areas (DMA) which are monitored daily by a water accountability group.

**CURRENT WATER LOSS REDUCTION PLAN**

SCWD’s current water loss reduction plan is focused on the following: (1) problematic main line replacements, (2) installation of acoustic leak sensors, (3) service line replacement program, and (4) deployment of water accountability personnel into DMA’s experiencing excessive water loss.

1. **MAIN LINE REPLACEMENTS**

As of September 1, 2021, the Main Line Replacement Program – Phase 1 was completed consisting of 9 main line replacements totaling 37,940 linear feet at cost of \$1,079,048. The Phase 1 replacements were funded through financing from Rural Development (RD), matching grant funds from the Economic Development Authority, and SCWD funds. Approval was granted by PSC through case 2019-00395. A summary of the completed line replacements is provided in Table 1 below.

**TABLE 1  
Line Replacements - Phase 1**

Rank	Road Name	Size	Length	No. Leaks (Last 5 Years)	Replacement Cost	Cost per Leak
1	Blackjack Road (South)	4" PVC	1,460	14	\$35,770	\$2,555
2	Roark Road (South)	6" PVC	1,100	9	\$31,350	\$3,483
3	Sportsman Lake Road	8" PVC	14,000	30	\$291,238	\$9,708
4	Rutherford Road	4" PVC	940	7	\$23,030	\$3,290
5	Lake Springs Road	10" PVC	7,500	13	\$373,910	\$28,762
6	Blackjack Road (North)	4" PVC	6,200	17	\$151,900	\$8,935
7	Roundpond- Rapids Road Area	4" PVC	4,160	11	\$101,920	\$9,265
8	Macedonia Road	6" PVC	1,680	6	\$47,880	\$7,980
9	Witt Road	4" PVC	900	3	\$22,050	\$7,350
Totals			37,940	110	\$1,079,048	

## 2. ACOUSTIC LEAK SENSORS

As a part of its regular operations, SCWD has installed with in-house personnel 2,950 automated meter reading (AMR) units and over 2,000 leak sensor units on meters throughout its system which allows for drive-by collection of meter readings and leak sensor data. Data from the sensors is processed and analyzed through advanced software analytics and reviewed the SCWD Distribution Supervisor weekly. The sensors have identified 45 leaks since their implementation.

## 3. SERVICE LINE REPLACEMENT PROGRAM

Recognizing that service lines are a significant contributor to water loss, SCWD implemented a Service Line Replacement Program in 2012 to begin replacing problematic service lines. To date, over 150 service lines have been replaced.

## 4. WATER ACCOUNTABILITY PERSONNEL

Through its Joint Operations Agreement with Warren County Water District, SCWD is supported with six (6) water accountability professionals that are trained in leak detection, meter testing, and water accountability programs. This team utilizes the latest technologies available including ground sensing microphones, correlators, portable ultrasonic metering, and thirty (30) acoustical loggers. Each day, this team reviews DMA data from the system's advanced Supervisory Control and Data Acquisition (SCADA) system to determine any abnormalities from the previous 24 hours. Personnel are assigned as appropriate. Since 2019, over 2,500 man-hours have been utilized for water accountability in SCWD.

## FUTURE WATER LOSS REDUCTION PLAN

### 1. MAIN LINE REPLACEMENTS

SCWD's engineering staff reviewed historical leak data in the distribution system and has identified an additional 25 main line replacements for consideration for the Line Replacement Program, Phases 2 & 3. These replacements are ranked by replacement cost per leak as listed below in Table 2.

**TABLE 2**  
**Proposed Line Replacements - Phases 2 & 3**

Rank	Road Name	Size & Mat'l	Length	No. Leaks (Last 5 Yrs)	Replacement Cost	Cost per Leak
1	Allen Road	3" SW	7,200	6	\$20,000	\$3,333
2	Hwy 73 North (Flat Rock to Hardison)	4" CL 160	4,300	4	\$15,100	\$3,775
3	Salmons-Blackjack Road	3" SW	7,200	8	\$34,800	\$4,350
4	Downtown Gold City	4" AC	1,900	2	\$15,100	\$7,550
5	Kinnard Road	4" AC/3" PVC	1,800	7	\$64,800	\$9,257
6	Salem Road(Williams to north end)	3" SW	4,500	4	\$37,300	\$9,325
7	Neosheo Road	4" ACP	21,000	7	\$74,500	\$10,643
8	Roark Road (Philips to Blackjack)	3" SW	8,900	9	\$106,900	\$11,878

Rank	Road Name	Size & Mat'l	Length	No. Leaks (Last 5 Yrs)	Replacement Cost	Cost per Leak
9	Witt Rd (Forshee to Perdue)	3" PVC	1,100	3	\$39,600	\$13,200
10	Geddes Road	4" PVC	2,000	5	\$72,000	\$14,400
11	Rapids Rd (South)	3" PVC	2,700	5	\$81,000	\$16,200
12	Phillips Road	3" PVC	3,740	8	\$134,600	\$16,825
13	Blackjack Road (South)	3" PVC	8,200	14	\$295,200	\$21,086
14	Charlie Butts (West)	3" PVC	3,800	6	\$136,800	\$22,800
15	Charlie Butts (East) / Schweizer	3" PVC	3,800	6	\$136,800	\$22,800
16	Williams Road	3" PVC	4,550	7	\$163,800	\$23,400
17	Mary Summers (Rest Area)	6" PVC	1,400	2	\$50,400	\$25,200
18	Rapids Rd (Middle)	3" PVC	4,300	5	\$129,000	\$25,800
19	Kenny Perry Drive	1" PE	700	2	\$63,000	\$31,500
20	Rapids Rd (North)	3" PVC	10,400	10	\$312,000	\$31,200
21	Blackjack Road (North)	3" PVC	7,900	9	\$284,400	\$31,600
22	Barnes School Road	3" PVC	5,300	6	\$190,800	\$31,800
23	Sportsman Lake (North)	3" PVC	3,400	4	\$163,200	\$40,800
24	Hardison Road (North)	4" PVC	14,700	10	\$705,600	\$70,560
25	Morgantown Road (South)	4" AC/3" PVC	6,200	3	\$223,200	\$74,400
Totals			140,990	152	\$3,549,900	

SCWD plans to utilize funds available through the American Rescue Plan Act of 2021 (ARPA) for Phase 2 for the top 10 main line replacements (#1 Allen Rd through #10 Geddes Road) with an estimated cost of \$480,100. Based on the availability of the ARPA funds, SCWD estimates the completion of Phase 2 by December 2023. Phase 3 will be the remaining 15 main line replacements at an estimated cost of \$3,069,800 and will require SCWD to access funding sources such as Kentucky Infrastructure Authority and Rural Development if other infrastructure funding is not available. Phase 3 replacements will be re-evaluated in three years to determine viability and reassess priority. The line replacements identified in Table 2 are subject to change or substitution, based upon necessity and affordability.

## 2. ACOUSTIC LEAK SENSORS

Acoustic leak sensors have the capability to continuously monitor service lines and distribution mains for leaks. SCWD plans to install approximately 595 acoustic leak sensors. SCWD plans to have these remaining leak sensors installed by December 2023 at an estimated cost of \$35,700. SCWD will use internal funds to complete the leak sensor installation.

## 3. SERVICE LINE REPLACEMENT PROGRAM

SCWD plans to continue the Service Line Replacement Program through the replacement of service lines as they fail in lieu of repairing them.

## 4. WATER ACCOUNTABILITY PERSONNEL

Water Accountability personnel will continue to be deployed as needed to evaluate DMA's and perform meter testing.

## **RESULTS TO DATE**

SCWD's efforts over the last three years, including limitations and challenges placed on the District during the pandemic, have resulted in improvements to the system's water loss. The District's water loss percentage has been reduced from 20.1073% as reported in year 2019 to 17.06% in year 2020 to 16.50% as of August 31, 2021.