

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

ELECTRONIC INVESTIGATION INTO)	
EXCESSIVE WATER LOSS BY KENTUCKY'S)	Case No. 2019-00041
JURISDICTIONAL WATER UTILITIES)	

**CAWOOD WATER DISTRICT'S RESPONSE TO REQUESTS FOR INFORMATION
CONTAINED IN APPENDIX C TO THE COMMISSION'S ORDER ENTERED
MARCH 12, 2019**

Filed April 12, 2019

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

1. Provide the utility's monthly unaccounted for loss water loss percentage report with associated underlying data from January 1, 2018, to the date of the issuance of this Order.

Response:

Please see attached. Provided are monthly water loss reports for Cawood followed by reports for Pathfork; the Pathfork area is served exclusively with water purchased from Pineville Utility Commission.

Monthly Water Use Report

Water Utility: Cawood Water District PWSID: KY0480565

For the Month of: Jan Year: 2018

1 PRODUCTION COST PER THOUSAND (insert cost)
 2 PURCHASE COST PER THOUSAND (insert cost)

GALLONS

WATER PRODUCED or PURCHASED			
3	Water Produced	13,600,987	92.3%
4	Water Purchased	1,128,000	7.7%
5	TOTAL PRODUCED AND PURCHASED	14,728,987	
6	TOTAL COST #VALUE!		

WATER SOLD			
7	Residential	7,198,986	
8	Commercial		
9	Industrial		
10	Bulk Loading Stations		
11	Wholesale		
12	Other Sales (explain)		
13	TOTAL WATER SOLD	7,198,986	48.9%
14	TOTAL WATER NOT SOLD	7,530,001	51.1%

BREAKDOWN OF WATER USAGE			
15	Water Treatment Plant	40,000	
16	Wastewater Treatment Plant		
17	System Flushing	52,682	#VALUE!
18	Fire Department Usage	9,505	#VALUE!
19	DBP Flushing DBP Maintenance	0	
20	TOTAL USAGE	102,187	
21	WATER LOSS PERCENTAGE FOR RATE PURPOSES		50.4%

BREAKDOWN OF WATER LOST			
22	Tank Overflows (other than for DBP maintenance)		
23	Excavation Breaks	0	
24	Repaired Line Breaks	1,520,249	#VALUE!
25	Unknown Loss	5,907,565	40.1%
26	TOTAL WATER NOT SOLD OR USED	7,427,814	
27	COST OF WATER NOT SOLD OR USED		#VALUE!

"UNKNOWN LOSS" FLOW RATE AND COST:			
28	"Unknown Loss"	5,907,565	
29	% "Unknown Loss"	40.1%	
30	Number of Days in Period	30	
31	"Unknown Loss" per Day (Gallons per Day)	196,919	
32	"Unknown Loss" per Minute (GPM)	136.75	
33	"Unknown Loss" Cost for Month		#VALUE!

Monthly Water Use Report

Water Utility: Cawood Water District PWSID: KY0480565

For the Month of: Feb. Year: 2018

1 PRODUCTION COST PER THOUSAND (insert cost)
 2 PURCHASE COST PER THOUSAND (insert cost)

GALLONS

WATER PRODUCED or PURCHASED			
3	Water Produced	10,202,490	95.7%
4	Water Purchased	454,000	4.3%
5	TOTAL PRODUCED AND PURCHASED	10,656,490	
6	TOTAL COST #VALUE!		

WATER SOLD			
7	Residential	5,407,836	
8	Commercial		
9	Industrial		
10	Bulk Loading Stations		
11	Wholesale		
12	Other Sales (explain)		
13	TOTAL WATER SOLD	5,407,836	50.7%
14	TOTAL WATER NOT SOLD	5,248,654	49.3%

BREAKDOWN OF WATER USAGE			
15	Water Treatment Plant	40,000	
16	Wastewater Treatment Plant		
17	System Flushing	186,265	#VALUE!
18	Fire Department Usage	0	
19	DBP Flushing DBP Maintenance	96,300	#VALUE!
20	TOTAL USAGE	322,565	
21	WATER LOSS PERCENTAGE FOR RATE PURPOSES	46.2%	

BREAKDOWN OF WATER LOST			
22	Tank Overflows (other than for DBP maintenance)		
23	Excavation Breaks	0	
24	Repaired Line Breaks	3,254,578	#VALUE!
25	Unknown Loss	1,671,510	15.7%
26	TOTAL WATER NOT SOLD OR USED	4,926,089	
27	COST OF WATER NOT SOLD OR USED	#VALUE!	

"UNKNOWN LOSS" FLOW RATE AND COST:			
28	"Unknown Loss"	1,671,510	
29	% "Unknown Loss"	15.7%	
30	Number of Days in Period	30	
31	"Unknown Loss" per Day (Gallons per Day)	55,717	
32	"Unknown Loss" per Minute (GPM)	38.69	
33	"Unknown Loss" Cost for Month	#VALUE!	

Monthly Water Use Report

Water Utility: Cawood Water District PWSID: KY0480565

For the Month of: March Year: 2018

1 PRODUCTION COST PER THOUSAND (insert cost)
 2 PURCHASE COST PER THOUSAND (insert cost)

GALLONS

WATER PRODUCED or PURCHASED

3	Water Produced	10,559,000	100.0%
4	Water Purchased		0.0%
5	TOTAL PRODUCED AND PURCHASED	10,559,000	
6	TOTAL COST #VALUE!		

WATER SOLD

7	Residential	6,022,485	
8	Commercial		
9	Industrial		
10	Bulk Loading Stations		
11	Wholesale		
12	Other Sales (explain) _____		
13	TOTAL WATER SOLD	6,022,485	57.0%
14	TOTAL WATER NOT SOLD	4,536,515	43.0%

BREAKDOWN OF WATER USAGE

15	Water Treatment Plant	1,050,000	
16	Wastewater Treatment Plant		
17	System Flushing	1,049,402	#VALUE!
18	Fire Department Usage	0	
19	DBP Flushing DBP Maintenance	193,475	#VALUE!
20	TOTAL USAGE	2,292,877	
21	WATER LOSS PERCENTAGE FOR RATE PURPOSES		21.2%

BREAKDOWN OF WATER LOST

22	Tank Overflows (other than for DBP maintenance)		
23	Excavation Breaks	0	
24	Repaired Line Breaks	287,675	#VALUE!
25	Unknown Loss	1,955,963	18.5%
26	TOTAL WATER NOT SOLD OR USED	2,243,638	
27	COST OF WATER NOT SOLD OR USED	#VALUE!	

"UNKNOWN LOSS" FLOW RATE AND COST:

28	"Unknown Loss"	1,955,963	
29	% "Unknown Loss"	18.5%	
30	Number of Days in Period	30	
31	"Unknown Loss" per Day (Gallons per Day)	65,199	
32	"Unknown Loss" per Minute (GPM)	45.28	
33	"Unknown Loss" Cost for Month	#VALUE!	

Monthly Water Use Report

Water Utility: Cawood Water District PWSID: KY0480565

For the Month of: April Year: 2018

1 PRODUCTION COST PER THOUSAND (insert cost)
 2 PURCHASE COST PER THOUSAND (insert cost)

GALLONS

WATER PRODUCED or PURCHASED			
3	Water Produced	10,297,982	100.0%
4	Water Purchased	 	0.0%
5	TOTAL PRODUCED AND PURCHASED	10,297,982	
6	TOTAL COST #VALUE!		

WATER SOLD			
7	Residential	6,156,370	
8	Commercial	 	
9	Industrial	 	
10	Bulk Loading Stations	 	
11	Wholesale	 	
12	Other Sales (explain) _____	 	
13	TOTAL WATER SOLD	6,156,370	59.8%
14	TOTAL WATER NOT SOLD	4,141,612	40.2%

BREAKDOWN OF WATER USAGE			
15	Water Treatment Plant	1,023,180	
16	Wastewater Treatment Plant	 	
17	System Flushing	661,200	#VALUE!
18	Fire Department Usage	50,408	#VALUE!
19	DBP Flushing DBP Maintenance	111,756	#VALUE!
20	TOTAL USAGE	1,846,544	
21	WATER LOSS PERCENTAGE FOR RATE PURPOSES		22.3%

BREAKDOWN OF WATER LOST			
22	Tank Overflows (other than for DBP maintenance)	 	
23	Excavation Breaks	0	
24	Repaired Line Breaks	215,756	#VALUE!
25	Unknown Loss	2,079,312	20.2%
26	TOTAL WATER NOT SOLD OR USED	2,295,068	
27	COST OF WATER NOT SOLD OR USED		#VALUE!

"UNKNOWN LOSS" FLOW RATE AND COST:			
28	"Unknown Loss"	2,079,312	
29	% "Unknown Loss"	20.2%	
30	Number of Days in Period	30	
31	"Unknown Loss" per Day (Gallons per Day)	69,310	
32	"Unknown Loss" per Minute (GPM)	48.13	
33	"Unknown Loss" Cost for Month		#VALUE!

Monthly Water Use Report

Water Utility: Cawood Water District PWSID: KY0480565

For the Month of: May Year: 2018

1 PRODUCTION COST PER THOUSAND (insert cost)
 2 PURCHASE COST PER THOUSAND (insert cost)

GALLONS

WATER PRODUCED or PURCHASED			
3	Water Produced	10,255,100	100.0%
4	Water Purchased		0.0%
5	TOTAL PRODUCED AND PURCHASED	10,255,100	
6	TOTAL COST #VALUE!		

WATER SOLD			
7	Residential	6,259,016	
8	Commercial		
9	Industrial		
10	Bulk Loading Stations		
11	Wholesale		
12	Other Sales (explain) _____		
13	TOTAL WATER SOLD	6,259,016	61.0%
14	TOTAL WATER NOT SOLD	3,996,084	39.0%

BREAKDOWN OF WATER USAGE			
15	Water Treatment Plant	125,550	
16	Wastewater Treatment Plant		
17	System Flushing	1,619,085	#VALUE!
18	Fire Department Usage	0	
19	DBP Flushing DBP Maintenance	83,817	#VALUE!
20	TOTAL USAGE	1,828,452	
21	WATER LOSS PERCENTAGE FOR RATE PURPOSES		21.1%

BREAKDOWN OF WATER LOST			
22	Tank Overflows (other than for DBP maintenance)		
23	Excavation Breaks	0	
24	Repaired Line Breaks	497,635	#VALUE!
25	Unknown Loss	1,669,996	16.3%
26	TOTAL WATER NOT SOLD OR USED	2,167,632	
27	COST OF WATER NOT SOLD OR USED	#VALUE!	

"UNKNOWN LOSS" FLOW RATE AND COST:			
28	"Unknown Loss"	1,669,996	
29	% "Unknown Loss"	16.3%	
30	Number of Days in Period	30	
31	"Unknown Loss" per Day (Gallons per Day)	55,667	
32	"Unknown Loss" per Minute (GPM)	38.66	
33	"Unknown Loss" Cost for Month	#VALUE!	

PUBLIC SERVICE COMMISSION

Monthly Water Loss Report

Water Utility:

For the Month of: Year:

LINE #	ITEM	GALLONS (Omit 000's)	
1	WATER PRODUCED, PURCHASED & DISTRIBUTED		
2	Water Produced	10,231,136	
3	Water Purchased		
4	TOTAL PRODUCED AND PURCHASED	10,231,136	
5			
6	WATER SALES		
7	Residential	8,116,672	
8	Commercial		
9	Industrial		
10	Bulk Loading Stations		
11	Wholesale		
12	Other Sales		
13	TOTAL WATER SALES	8,116,672 79.3%	
14			
15	OTHER WATER USED		
16	Utility and/or Water Treatment Plant	40,000	
17	Wastewater Plant		
18	System Flushing	397,095	
19	Fire Department	5,601	
20	Other		
21	TOTAL OTHER WATER USED	442,696 4.3%	
22			
23	WATER LOSS		
24	Tank Overflows		
25	Line Breaks		
26	Line Leaks	1,671,768	
27	Other		
28	TOTAL LINE LOSS	1,671,768 16.3%	
29			
30	Note: Line 13 + Line 21 + Line 28 Must Equal Line 4		
31			
32	WATER LOSS PERCENTAGE		
33	Unaccounted-For Water (Line 28 divided by Line 4)	16.3%	

Monthly Water Use Report

Water Utility: Cawood Water District PWSID: KY0480565

For the Month of: July Year: 2018

Line #	Item	Gallons	
1	Water Produced, Purchased and Distributed		
2	Water Produced	11,572,316	
3	Water Purchased	0	
4	Water Produced & Purchased	11,572,316	
5			
6	Water Sales		
7	Residential	5,800,075	
8	Commercial	0	
9	Industrial	0	
10	Bulk Loading Stations	0	
11	Wholesale	0	
12	Other Sales (explain) _____ 0	0	
13	Total Water Sales	5,800,075	50.1%
14			
15	Other Water Used		
16	Utility and/or Water Treatment Plant	40,000	
17	Wastewater Treatment Plant	0	
18	System Flushing	650,143	
19	Fire Department Usage	28,004	
20	Other Usage (explain) _____ DBP Maintenance	114,771	
21	Total Other Water Used	832,918	7.2%
22			
23	Water Loss		
24	Tank Overflows	0	
25	Line Breaks	173,028	
26	Line Leaks	4,766,294	
27	Other _____		
28	Total Line Loss	4,939,323	42.7%
29			
30	Note: Line 13 + Line 21 + Line 28 Must Equal Line 4		
31			
32	Water Loss Percentage		
33	Unaccounted-For Water (Line 28 Divided by Line 4)	42.7%	

Monthly Water Use Report

Water Utility: Cawood Water District/Pathfork PWSID: KY0480565

For the Month of: August Year: 2018

1 PRODUCTION COST PER THOUSAND (insert cost)
 2 PURCHASE COST PER THOUSAND (insert cost)

GALLONS

WATER PRODUCED or PURCHASED			
3	Water Produced		0.0%
4	Water Purchased	726,000	100.0%
5	TOTAL PRODUCED AND PURCHASED	726,000	
6	TOTAL COST #VALUE!		

WATER SOLD			
7	Residential		
8	Commercial	582,408	
9	Industrial		
10	Bulk Loading Stations		
11	Wholesale		
12	Other Sales (explain)		
13	TOTAL WATER SOLD	582,408	80.2%
14	TOTAL WATER NOT SOLD	143,592	19.8%

BREAKDOWN OF WATER USAGE			
15	Water Treatment Plant		
16	Wastewater Treatment Plant		
17	System Flushing	0	
18	Fire Department Usage	0	
19	DBP Flushing DBP Maintenance	0	
20	TOTAL USAGE	0	
21	WATER LOSS PERCENTAGE FOR RATE PURPOSES		19.8%

BREAKDOWN OF WATER LOST			
22	Tank Overflows (other than for DBP maintenance)		
23	Excavation Breaks	0	
24	Repaired Line Breaks	0	
25	Unknown Loss	143,592	19.8%
26	TOTAL WATER NOT SOLD OR USED	143,592	
27	COST OF WATER NOT SOLD OR USED	#VALUE!	

"UNKNOWN LOSS" FLOW RATE AND COST:			
28	"Unknown Loss"	143,592	
29	% "Unknown Loss"	19.8%	
30	(insert days of operation during month) Number of Days in Period		
31	"Unknown Loss" per Day (Gallons per Day)		
32	"Unknown Loss" per Minute (GPM)		
33	"Unknown Loss" Cost for Month		#VALUE!

Monthly Water Use Report

Water Utility: Cawood Water District PWSID: KY0480565

For the Month of: september Year: 2018

Line #	Item	Gallons	
1	Water Produced, Purchased and Distributed		
2	Water Produced	12,670,985	
3	Water Purchased	1,011,000	
4	Water Produced & Purchased	13,681,985	
5			
6	Water Sales		
7	Residential	6,942,241	
8	Commercial	0	
9	Industrial	0	
10	Bulk Loading Stations	0	
11	Wholesale	0	
12	Other Sales (explain) _____ 0	0	
13	Total Water Sales	6,942,241	50.7%
14			
15	Other Water Used		
16	Utility and/or Water Treatment Plant	40,000	
17	Wastewater Treatment Plant	0	
18	System Flushing	233,671	
19	Fire Department Usage	0	
20	Other Usage (explain) _____ DBP Maintenance	0	
21	Total Other Water Used	273,671	2.0%
22			
23	Water Loss		
24	Tank Overflows	0	
25	Line Breaks	1,632,382	
26	Line Leaks	4,833,691	
27	Other _____		
28	Total Line Loss	6,466,073	47.3%
29			
30	Note: Line 13 + Line 21 + Line 28 Must Equal Line 4		
31			
32	Water Loss Percentage		
33	Unaccounted-For Water (Line 28 Divided by Line 4)	47.3%	

Monthly Water Use Report

Water Utility: Cawood Water PWSID: 480565

For the Month of: OCTOBER Year: 2018

Line #	Item	Gallons	
1	Water Produced, Purchased and Distributed		
2	Water Produced	12,788,841	
3	Water Purchased	23,400	
4	Water Produced & Purchased	12,812,241	
5			
6	Water Sales		
7	Residential	5,389,786	
8	Commercial	0	
9	Industrial	0	
10	Bulk Loading Stations	0	
11	Wholesale	0	
12	Other Sales (explain) _____ 0	0	
13	Total Water Sales	5,389,786	42.1%
14			
15	Other Water Used		
16	Utility and/or Water Treatment Plant	70,000	
17	Wastewater Treatment Plant	0	
18	System Flushing	662,933	
19	Fire Department Usage	0	
20	Other Usage (explain) _____ DBP Maintenance	296,729	
21	Total Other Water Used	1,029,663	8.0%
22			
23	Water Loss		
24	Tank Overflows	0	
25	Line Breaks	1,058,818	
26	Line Leaks	5,333,974	
27	Other _____		
28	Total Line Loss	6,392,792	49.9%
29			
30	Note: Line 13 + Line 21 + Line 28 Must Equal Line 4		
31			
32	Water Loss Percentage		
33	Unaccounted-For Water (Line 28 Divided by Line 4)	49.9%	

Monthly Water Use Report

Water Utility: Cawood Water PWSID: 480565

For the Month of: November Year: 2018

Line #	Item	Gallons	
1	Water Produced, Purchased and Distributed		
2	Water Produced	12,599,938	
3	Water Purchased	0	
4	Water Produced & Purchased	12,599,938	
5			
6	Water Sales		
7	Residential	6,411,710	
8	Commercial	0	
9	Industrial	0	
10	Bulk Loading Stations	0	
11	Wholesale	0	
12	Other Sales (explain) _____ 0	0	
13	Total Water Sales	6,411,710	50.9%
14			
15	Other Water Used		
16	Utility and/or Water Treatment Plant	70,000	
17	Wastewater Treatment Plant	0	
18	System Flushing	115,486	
19	Fire Department Usage	137,908	
20	Other Usage (explain) _____ DBP Maintenance	22,812	
21	Total Other Water Used	346,206	2.7%
22			
23	Water Loss		
24	Tank Overflows	0	
25	Line Breaks	310,124	
26	Line Leaks	5,531,898	
27	Other _____		
28	Total Line Loss	5,842,022	46.4%
29			
30	Note: Line 13 + Line 21 + Line 28 Must Equal Line 4		
31			
32	Water Loss Percentage		
33	Unaccounted-For Water (Line 28 Divided by Line 4)	46.4%	

Monthly Water Use Report

Water Utility: Cawood Water PWSID: 480565

For the Month of: December Year: 2018

1 PRODUCTION COST PER THOUSAND (insert cost)
 2 PURCHASE COST PER THOUSAND (insert cost)

GALLONS

WATER PRODUCED or PURCHASED			
3	Water Produced	13,029,568	100.0%
4	Water Purchased	2,040	0.0%
5	TOTAL PRODUCED AND PURCHASED	13,031,608	
6	TOTAL COST #VALUE!		

WATER SOLD			
7	Residential	5,103,312	
8	Commercial		
9	Industrial		
10	Bulk Loading Stations		
11	Wholesale		
12	Other Sales (explain)		
13	TOTAL WATER SOLD	5,103,312	39.2%
14	TOTAL WATER NOT SOLD	7,928,296	60.8%

BREAKDOWN OF WATER USAGE			
15	Water Treatment Plant	84,000	
16	Wastewater Treatment Plant		
17	System Flushing	928,253	#VALUE!
18	Fire Department Usage	0	
19	DBP Flushing DBP Maintenance	417,714	#VALUE!
20	TOTAL USAGE	1,429,967	
21	WATER LOSS PERCENTAGE FOR RATE PURPOSES		49.9%

BREAKDOWN OF WATER LOST			
22	Tank Overflows (other than for DBP maintenance)		
23	Excavation Breaks	0	
24	Repaired Line Breaks	2,954,362	#VALUE!
25	Unknown Loss	3,543,967	27.2%
26	TOTAL WATER NOT SOLD OR USED	6,498,329	
27	COST OF WATER NOT SOLD OR USED	#VALUE!	

"UNKNOWN LOSS" FLOW RATE AND COST:			
28	"Unknown Loss"	3,543,967	
29	% "Unknown Loss"	27.2%	
30	(insert days of operation during month) Number of Days in Period		
31	"Unknown Loss" per Day (Gallons per Day)		
32	"Unknown Loss" per Minute (GPM)		
33	"Unknown Loss" Cost for Month		#VALUE!

Monthly Water Use Report

Water Utility: Cawood Water PWSID: 480565

For the Month of: JANUARY Year: 2019

1 PRODUCTION COST PER THOUSAND (insert cost)
 2 PURCHASE COST PER THOUSAND (insert cost)

GALLONS

WATER PRODUCED or PURCHASED			
3	Water Produced	13,065,429	100.0%
4	Water Purchased	 	0.0%
5	TOTAL PRODUCED AND PURCHASED	13,065,429	
6	TOTAL COST #VALUE!		

WATER SOLD			
7	Residential	6,028,091	
8	Commercial	 	
9	Industrial	 	
10	Bulk Loading Stations	 	
11	Wholesale	 	
12	Other Sales (explain)	 	
13	TOTAL WATER SOLD	6,028,091	46.1%
14	TOTAL WATER NOT SOLD	7,037,338	53.9%

BREAKDOWN OF WATER USAGE			
15	Water Treatment Plant	40,000	
16	Wastewater Treatment Plant	 	
17	System Flushing	240,534	#VALUE!
18	Fire Department Usage	0	
19	DBP Flushing DBP Maintenance	514,256	#VALUE!
20	TOTAL USAGE	794,790	
21	WATER LOSS PERCENTAGE FOR RATE PURPOSES		47.8%

BREAKDOWN OF WATER LOST			
22	Tank Overflows (other than for DBP maintenance)	 	
23	Excavation Breaks	0	
24	Repaired Line Breaks	0	
25	Unknown Loss	6,242,548	47.8%
26	TOTAL WATER NOT SOLD OR USED	6,242,548	
27	COST OF WATER NOT SOLD OR USED	#VALUE!	

"UNKNOWN LOSS" FLOW RATE AND COST:		
28	"Unknown Loss"	6,242,548
29	% "Unknown Loss"	47.8%
30	Number of Days in Period	30
31	"Unknown Loss" per Day (Gallons per Day)	208,085
32	"Unknown Loss" per Minute (GPM)	144.50
33	"Unknown Loss" Cost for Month	#VALUE!

Monthly Water Use Report

Water Utility: Cawood Water PWSID: 480565

For the Month of: FEBRUARY Year: 2019

1 PRODUCTION COST PER THOUSAND (insert cost)
 2 PURCHASE COST PER THOUSAND (insert cost)

GALLONS

WATER PRODUCED or PURCHASED			
3	Water Produced	11,513,472	99.9%
4	Water Purchased	8,810	0.1%
5	TOTAL PRODUCED AND PURCHASED	11,522,282	
6	TOTAL COST #VALUE!		

WATER SOLD			
7	Residential	5,679,998	
8	Commercial		
9	Industrial		
10	Bulk Loading Stations		
11	Wholesale		
12	Other Sales (explain)		
13	TOTAL WATER SOLD	5,679,998	49.3%
14	TOTAL WATER NOT SOLD	5,842,284	50.7%

BREAKDOWN OF WATER USAGE			
15	Water Treatment Plant	90,000	
16	Wastewater Treatment Plant		
17	System Flushing	229,587	#VALUE!
18	Fire Department Usage	0	
19	DBP Flushing DBP Maintenance	398,538	#VALUE!
20	TOTAL USAGE	718,125	
21	WATER LOSS PERCENTAGE FOR RATE PURPOSES		44.5%

BREAKDOWN OF WATER LOST			
22	Tank Overflows (other than for DBP maintenance)	 	
23	Excavation Breaks	0	
24	Repaired Line Breaks	2,534,500	#VALUE!
25	Unknown Loss	2,589,659	22.5%
26	TOTAL WATER NOT SOLD OR USED	5,124,159	
27	COST OF WATER NOT SOLD OR USED	#VALUE!	

"UNKNOWN LOSS" FLOW RATE AND COST:			
28	"Unknown Loss"	2,589,659	
29	% "Unknown Loss"	22.5%	
30	Number of Days in Period	28	
31	"Unknown Loss" per Day (Gallons per Day)	92,488	
32	"Unknown Loss" per Minute (GPM)	64.23	
33	"Unknown Loss" Cost for Month	#VALUE!	

Monthly Water Use Report

Water Utility: Cawood Water District/Pathfork PWSID: KY0483727

For the Month of: JANUARY Year: 2018

1 PRODUCTION COST PER THOUSAND (insert cost)
 2 PURCHASE COST PER THOUSAND (insert cost)

GALLONS

WATER PRODUCED or PURCHASED			
3	Water Produced		0.0%
4	Water Purchased	593,000	100.0%
5	TOTAL PRODUCED AND PURCHASED	593,000	
6	TOTAL COST #VALUE!		

WATER SOLD			
7	Residential	439,320	
8	Commercial		
9	Industrial		
10	Bulk Loading Stations		
11	Wholesale		
12	Other Sales (explain)		
13	TOTAL WATER SOLD	439,320	74.1%
14	TOTAL WATER NOT SOLD	153,680	25.9%

BREAKDOWN OF WATER USAGE			
15	Water Treatment Plant		
16	Wastewater Treatment Plant		
17	System Flushing	0	
18	Fire Department Usage	0	
19	DBP Flushing DBP Maintenance	0	
20	TOTAL USAGE	0	
21	WATER LOSS PERCENTAGE FOR RATE PURPOSES		25.9%

BREAKDOWN OF WATER LOST			
22	Tank Overflows (other than for DBP maintenance)		
23	Excavation Breaks	0	
24	Repaired Line Breaks	0	
25	Unknown Loss	153,680	25.9%
26	TOTAL WATER NOT SOLD OR USED	153,680	
27	COST OF WATER NOT SOLD OR USED	#VALUE!	

"UNKNOWN LOSS" FLOW RATE AND COST:			
28	"Unknown Loss"	153,680	
29	% "Unknown Loss"	25.9%	
30	(insert days of operation during month) Number of Days in Period		
31	"Unknown Loss" per Day (Gallons per Day)		
32	"Unknown Loss" per Minute (GPM)		
33	"Unknown Loss" Cost for Month		#VALUE!

Monthly Water Use Report

ORIGINAL

Water Utility: Cawood Water District/Pathfork PWSID: ky0480565

For the Month of: Feb Year: 2018

1	PRODUCTION COST PER THOUSAND	\$0.00
2	PURCHASE COST PER THOUSAND	\$0.00

GALLONS

WATER PRODUCED or PURCHASED

3	Water Produced	\$0.00		0.0%
4	Water Purchased	\$0.00	679,000	100.0%
5	TOTAL PRODUCED AND PURCHASED		679,000	
6	TOTAL COST		\$0.00	

WATER SOLD

7	Residential		401,170	
8	Commercial			
9	Industrial			
10	Bulk Loading Stations			
11	Wholesale			
12	Other Sales (explain)			
13	TOTAL WATER SOLD		401,170	59.1%
14	TOTAL WATER NOT SOLD		277,830	40.9%

BREAKDOWN OF WATER USAGE

15	Water Treatment Plant			
16	Wastewater Treatment Plant			
17	System Flushing		96,783	\$0.00
18	Fire Department Usage		5,000	\$0.00
19	DBP Flushing	DBP Maintenance	0	
20	TOTAL USAGE		101,783	
21	WATER LOSS PERCENTAGE FOR RATE PURPOSES			25.9%

BREAKDOWN OF WATER LOST

22	Tank Overflows (other than for DBP maintenance)			
23	Excavation Breaks		0	
24	Repaired Line Breaks		0	
25	Unknown Loss		176,047	25.9%
26	TOTAL WATER NOT SOLD OR USED		176,047	
27	COST OF WATER NOT SOLD OR USED		\$0.00	

"UNKNOWN LOSS" FLOW RATE AND COST:

28	"Unknown Loss"	176,047
29	% "Unknown Loss"	25.9%
30	Number of Days in Period	31
31	"Unknown Loss" per Day (Gallons per Day)	5,679
32	"Unknown Loss" per Minute (GPM)	3.94
33	"Unknown Loss" Cost for Month	\$0.00

Monthly Water Use Report

Water Utility: Cawood Water District/Pathfork PWSID: ky0480565

For the Month of: March Year: 2018

1	PRODUCTION COST PER THOUSAND		\$0.00
2	PURCHASE COST PER THOUSAND		\$0.00

GALLONS

WATER PRODUCED or PURCHASED				
3	Water Produced	\$0.00		0.0%
4	Water Purchased	\$0.00	543,000	100.0%
5	TOTAL PRODUCED AND PURCHASED		543,000	
6	TOTAL COST	\$0.00		

WATER SOLD

7	Residential		521,590	
8	Commercial			
9	Industrial			
10	Bulk Loading Stations			
11	Wholesale			
12	Other Sales (explain)			
13	TOTAL WATER SOLD		521,590	96.1%
14	TOTAL WATER NOT SOLD		21,410	3.9%

BREAKDOWN OF WATER USAGE

15	Water Treatment Plant			
16	Wastewater Treatment Plant			
17	System Flushing		0	
18	Fire Department Usage		0	
19	DBP Flushing	DBP Maintenance	0	

20 **TOTAL USAGE** 0

21 **WATER LOSS PERCENTAGE FOR RATE PURPOSES** 3.9%

BREAKDOWN OF WATER LOST

22	Tank Overflows (other than for DBP maintenance)			
23	Excavation Breaks		0	
24	Repaired Line Breaks		0	
25	Unknown Loss		21,410	3.9%

26 **TOTAL WATER NOT SOLD OR USED** 21,410

27 **COST OF WATER NOT SOLD OR USED** \$0.00

"UNKNOWN LOSS" FLOW RATE AND COST:

28	"Unknown Loss"		21,410
29	% "Unknown Loss"		3.9%
30	Number of Days in Period		31
31	"Unknown Loss" per Day (Gallons per Day)		691
32	"Unknown Loss" per Minute (GPM)		0.48
33	"Unknown Loss" Cost for Month		\$0.00

Monthly Water Use Report

Water Utility: Cawood Water District/Pathfork PWSID: ky0480565

For the Month of: April Year: 2018

1	PRODUCTION COST PER THOUSAND	\$0.00
2	PURCHASE COST PER THOUSAND	\$0.00

GALLONS

WATER PRODUCED or PURCHASED			
3	Water Produced	\$0.00	0.0%
4	Water Purchased	\$0.00	567,000 100.0%
5	TOTAL PRODUCED AND PURCHASED		567,000
6	TOTAL COST		\$0.00

WATER SOLD

7	Residential	460,330	
8	Commercial		
9	Industrial		
10	Bulk Loading Stations		
11	Wholesale		
12	Other Sales (explain)		
13	TOTAL WATER SOLD		460,330 81.2%
14	TOTAL WATER NOT SOLD		106,670 18.8%

BREAKDOWN OF WATER USAGE

15	Water Treatment Plant		
16	Wastewater Treatment Plant		
17	System Flushing	57,353	\$0.00
18	Fire Department Usage	0	
19	DBP Flushing DBP Maintenance	0	
20	TOTAL USAGE		57,353
21	WATER LOSS PERCENTAGE FOR RATE PURPOSES		8.7%

BREAKDOWN OF WATER LOST

22	Tank Overflows (other than for DBP maintenance)		
23	Excavation Breaks	0	
24	Repaired Line Breaks	0	
25	Unknown Loss	49,317	8.7%
26	TOTAL WATER NOT SOLD OR USED		49,317
27	COST OF WATER NOT SOLD OR USED		\$0.00

"UNKNOWN LOSS" FLOW RATE AND COST:

28	"Unknown Loss"	49,317
29	% "Unknown Loss"	8.7%
30	Number of Days in Period	31
31	"Unknown Loss" per Day (Gallons per Day)	1,591
32	"Unknown Loss" per Minute (GPM)	1.10
33	"Unknown Loss" Cost for Month	\$0.00

Monthly Water Use Report

Water Utility: Cawood Water District/Pathfork PWSID: ky0480565

For the Month of: May Year: 2018

1	PRODUCTION COST PER THOUSAND	\$0.00	
2	PURCHASE COST PER THOUSAND	\$0.00	

GALLONS

WATER PRODUCED or PURCHASED			
3	Water Produced	\$0.00	
4	Water Purchased	\$0.00	626,000
5	TOTAL PRODUCED AND PURCHASED		626,000
6	TOTAL COST	\$0.00	

WATER SOLD

7	Residential		463,852	
8	Commercial			
9	Industrial			
10	Bulk Loading Stations			
11	Wholesale			
12	Other Sales (explain)			
13	TOTAL WATER SOLD		463,852	74.1%
14	TOTAL WATER NOT SOLD		162,148	25.9%

BREAKDOWN OF WATER USAGE

15	Water Treatment Plant			
16	Wastewater Treatment Plant			
17	System Flushing		95,050	\$0.00
18	Fire Department Usage		0	
19	DBP Flushing	DBP Maintenance	0	
20	TOTAL USAGE		95,050	
21	WATER LOSS PERCENTAGE FOR RATE PURPOSES			10.7%

BREAKDOWN OF WATER LOST

22	Tank Overflows (other than for DBP maintenance)			
23	Excavation Breaks		0	
24	Repaired Line Breaks		0	
25	Unknown Loss		67,098	10.7%
26	TOTAL WATER NOT SOLD OR USED		67,098	
27	COST OF WATER NOT SOLD OR USED		\$0.00	

"UNKNOWN LOSS" FLOW RATE AND COST:

28	"Unknown Loss"	67,098	
29	% "Unknown Loss"	10.7%	
30	Number of Days in Period	31	
31	"Unknown Loss" per Day (Gallons per Day)	2,164	
32	"Unknown Loss" per Minute (GPM)	1.50	
33	"Unknown Loss" Cost for Month	\$0.00	

Monthly Water Use Report

Water Utility: Cawood Water District/Pathfork PWSID: KY0483727

For the Month of: JUNE Year: 2018

1 PRODUCTION COST PER THOUSAND (insert cost)
 2 PURCHASE COST PER THOUSAND (insert cost)

GALLONS

WATER PRODUCED or PURCHASED			
3	Water Produced		0.0%
4	Water Purchased	674,000	100.0%
5	TOTAL PRODUCED AND PURCHASED	674,000	
6	TOTAL COST #VALUE!		

WATER SOLD			
7	Residential	587,170	
8	Commercial		
9	Industrial		
10	Bulk Loading Stations		
11	Wholesale		
12	Other Sales (explain)		
13	TOTAL WATER SOLD	587,170	87.1%
14	TOTAL WATER NOT SOLD	86,830	12.9%

BREAKDOWN OF WATER USAGE			
15	Water Treatment Plant		
16	Wastewater Treatment Plant		
17	System Flushing	0	
18	Fire Department Usage	0	
19	DBP Flushing DBP Maintenance	0	
20	TOTAL USAGE	0	
21	WATER LOSS PERCENTAGE FOR RATE PURPOSES		12.9%

BREAKDOWN OF WATER LOST			
22	Tank Overflows (other than for DBP maintenance)		
23	Excavation Breaks	0	
24	Repaired Line Breaks	0	
25	Unknown Loss	86,830	12.9%
26	TOTAL WATER NOT SOLD OR USED	86,830	
27	COST OF WATER NOT SOLD OR USED	#VALUE!	

"UNKNOWN LOSS" FLOW RATE AND COST:			
28	"Unknown Loss"	86,830	
29	% "Unknown Loss"	12.9%	
30	(insert days of operation during month) Number of Days in Period		
31	"Unknown Loss" per Day (Gallons per Day)		
32	"Unknown Loss" per Minute (GPM)		
33	"Unknown Loss" Cost for Month		#VALUE!

Monthly Water Use Report

Water Utility: Cawood Water District/Pathfork PWSID: ky0480565

For the Month of: July Year: 2018

1	PRODUCTION COST PER THOUSAND	\$0.00
2	PURCHASE COST PER THOUSAND	\$0.00

GALLONS

WATER PRODUCED or PURCHASED			
3	Water Produced	\$0.00	0.0%
4	Water Purchased	\$0.00	100.0%
5	TOTAL PRODUCED AND PURCHASED	685,000	
6	TOTAL COST	\$0.00	

WATER SOLD

7	Residential	455,790	
8	Commercial		
9	Industrial		
10	Bulk Loading Stations		
11	Wholesale		
12	Other Sales (explain)		
13	TOTAL WATER SOLD	455,790	66.5%
14	TOTAL WATER NOT SOLD	229,210	33.5%

BREAKDOWN OF WATER USAGE

15	Water Treatment Plant		
16	Wastewater Treatment Plant		
17	System Flushing	0	
18	Fire Department Usage	0	
19	DBP Flushing DBP Maintenance	0	

20 **TOTAL USAGE** 0

21 **WATER LOSS PERCENTAGE FOR RATE PURPOSES** **33.5%**

BREAKDOWN OF WATER LOST

22	Tank Overflows (other than for DBP maintenance)		
23	Excavation Breaks	0	
24	Repaired Line Breaks	132,123	\$0.00
25	Unknown Loss	97,087	14.2%

26 **TOTAL WATER NOT SOLD OR USED** **229,210**

27 **COST OF WATER NOT SOLD OR USED** **\$0.00**

"UNKNOWN LOSS" FLOW RATE AND COST:

28	"Unknown Loss"	97,087
29	% "Unknown Loss"	14.2%
30	Number of Days in Period	31
31	"Unknown Loss" per Day (Gallons per Day)	3,132
32	"Unknown Loss" per Minute (GPM)	2.17
33	"Unknown Loss" Cost for Month	\$0.00

Monthly Water Use Report

Water Utility: Cawood Water District/Pathfork PWSID: KY0480565

For the Month of: August Year: 2018

1 PRODUCTION COST PER THOUSAND (insert cost)

2 PURCHASE COST PER THOUSAND (insert cost)

GALLONS

WATER PRODUCED or PURCHASED			
3	Water Produced		0.0%
4	Water Purchased	726,000	100.0%
5	TOTAL PRODUCED AND PURCHASED	726,000	
6	TOTAL COST #VALUE!		

WATER SOLD			
7	Residential		
8	Commercial	582,408	
9	Industrial		
10	Bulk Loading Stations		
11	Wholesale		
12	Other Sales (explain)		
13	TOTAL WATER SOLD	582,408	80.2%
14	TOTAL WATER NOT SOLD	143,592	19.8%

BREAKDOWN OF WATER USAGE			
15	Water Treatment Plant		
16	Wastewater Treatment Plant		
17	System Flushing	0	
18	Fire Department Usage	0	
19	DBP Flushing DBP Maintenance	0	
20	TOTAL USAGE	0	
21	WATER LOSS PERCENTAGE FOR RATE PURPOSES	19.8%	

BREAKDOWN OF WATER LOST			
22	Tank Overflows (other than for DBP maintenance)		
23	Excavation Breaks	0	
24	Repaired Line Breaks	0	
25	Unknown Loss	143,592	19.8%
26	TOTAL WATER NOT SOLD OR USED	143,592	
27	COST OF WATER NOT SOLD OR USED	#VALUE!	

"UNKNOWN LOSS" FLOW RATE AND COST:			
28	"Unknown Loss"	143,592	
29	% "Unknown Loss"	19.8%	
30	(insert days of operation during month) Number of Days in Period		
31	"Unknown Loss" per Day (Gallons per Day)		
32	"Unknown Loss" per Minute (GPM)		
33	"Unknown Loss" Cost for Month	#VALUE!	

Monthly Water Use Report

Water Utility: Cawood Water District/Pathfork PWSID: KY0483727

For the Month of: september Year: 2018

Line #	Item	Gallons	
1	Water Produced, Purchased and Distributed		
2	Water Produced	0	
3	Water Purchased	762,000	
4	Water Produced & Purchased	762,000	
5			
6	Water Sales		
7	Residential	340,224	
8	Commercial	0	
9	Industrial	0	
10	Bulk Loading Stations	0	
11	Wholesale	0	
12	Other Sales (explain) _____ 0	0	
13	Total Water Sales	340,224	44.6%
14			
15	Other Water Used		
16	Utility and/or Water Treatment Plant	0	
17	Wastewater Treatment Plant	0	
18	System Flushing	0	
19	Fire Department Usage	0	
20	Other Usage (explain) _____ DBP Maintenance	0	
21	Total Other Water Used	0	0.0%
22			
23	Water Loss		
24	Tank Overflows	0	
25	Line Breaks	0	
26	Line Leaks	421,776	
27	Other _____		
28	Total Line Loss	421,776	55.4%
29			
30	Note: Line 13 + Line 21 + Line 28 Must Equal Line 4		
31			
32	Water Loss Percentage		
33	Unaccounted-For Water (Line 28 Divided by Line 4)	55.4%	

Monthly Water Use Report

Water Utility: Cawood Water District/Pathfork **PWSID:** KY0483727

For the Month of: OCTOBER **Year:** 2018

Line #	Item	Gallons	
1	Water Produced, Purchased and Distributed		
2	Water Produced	0	
3	Water Purchased	627,000	
4	Water Produced & Purchased	627,000	
5			
6	Water Sales		
7	Residential	541,631	
8	Commercial	0	
9	Industrial	0	
10	Bulk Loading Stations	0	
11	Wholesale	0	
12	Other Sales (explain) _____ 0	0	
13	Total Water Sales	541,631	86.4%
14			
15	Other Water Used		
16	Utility and/or Water Treatment Plant	0	
17	Wastewater Treatment Plant	0	
18	System Flushing	0	
19	Fire Department Usage	0	
20	Other Usage (explain) _____ DBP Maintenance	0	
21	Total Other Water Used	0	0.0%
22			
23	Water Loss		
24	Tank Overflows	0	
25	Line Breaks	0	
26	Line Leaks	85,369	
27	Other _____		
28	Total Line Loss	85,369	13.6%
29			
30	Note: Line 13 + Line 21 + Line 28 Must Equal Line 4		
31			
32	Water Loss Percentage		
33	Unaccounted-For Water (Line 28 Divided by Line 4)	13.6%	

Monthly Water Use Report

Water Utility: Cawood Water District/Pathfork PWSID: KY0480565

For the Month of: November Year: 2018

Line #	Item	Gallons	
1	Water Produced, Purchased and Distributed		
2	Water Produced	0	
3	Water Purchased	627,000	
4	Water Produced & Purchased	627,000	
5			
6	Water Sales		
7	Residential	0	
8	Commercial	541,631	
9	Industrial	0	
10	Bulk Loading Stations	0	
11	Wholesale	0	
12	Other Sales (explain) _____ 0	0	
13	Total Water Sales	541,631	86.4%
14			
15	Other Water Used		
16	Utility and/or Water Treatment Plant	0	
17	Wastewater Treatment Plant	0	
18	System Flushing	0	
19	Fire Department Usage	0	
20	Other Usage (explain) _____ DBP Maintenance	0	
21	Total Other Water Used	0	0.0%
22			
23	Water Loss		
24	Tank Overflows	0	
25	Line Breaks	0	
26	Line Leaks	85,369	
27	Other _____		
28	Total Line Loss	85,369	13.6%
29			
30	Note: Line 13 + Line 21 + Line 28 Must Equal Line 4		
31			
32	Water Loss Percentage		
33	Unaccounted-For Water (Line 28 Divided by Line 4)	13.6%	

Monthly Water Use Report

Water Utility: Cawood Water District/Pathfork PWSID: KY0483727

For the Month of: December Year: 2018

Line #	Item	Gallons	
1	Water Produced, Purchased and Distributed		
2	Water Produced	0	
3	Water Purchased	659,000	
4	Water Produced & Purchased	659,000	
5			
6	Water Sales		
7	Residential	459,313	
8	Commercial	0	
9	Industrial	0	
10	Bulk Loading Stations	0	
11	Wholesale	0	
12	Other Sales (explain) _____ 0	0	
13	Total Water Sales	459,313	69.7%
14			
15	Other Water Used		
16	Utility and/or Water Treatment Plant	0	
17	Wastewater Treatment Plant	0	
18	System Flushing	0	
19	Fire Department Usage	0	
20	Other Usage (explain) _____ DBP Maintenance	0	
21	Total Other Water Used	0	0.0%
22			
23	Water Loss		
24	Tank Overflows	0	
25	Line Breaks	0	
26	Line Leaks	199,687	
27	Other _____		
28	Total Line Loss	199,687	30.3%
29			
30	Note: Line 13 + Line 21 + Line 28 Must Equal Line 4		
31			
32	Water Loss Percentage		
33	Unaccounted-For Water (Line 28 Divided by Line 4)	30.3%	

Monthly Water Use Report

Water Utility: Cawood Water District/Pathfork PWSID: KY0483727

For the Month of: FEBRUARY Year: 2019

1 PRODUCTION COST PER THOUSAND (insert cost)
 2 PURCHASE COST PER THOUSAND (insert cost)

GALLONS

WATER PRODUCED or PURCHASED			
3	Water Produced		0.0%
4	Water Purchased	703,000	100.0%
5	TOTAL PRODUCED AND PURCHASED	703,000	
6	TOTAL COST #VALUE!		

WATER SOLD			
7	Residential	415,850	
8	Commercial		
9	Industrial		
10	Bulk Loading Stations		
11	Wholesale		
12	Other Sales (explain)		
13	TOTAL WATER SOLD	415,850	59.2%
14	TOTAL WATER NOT SOLD	287,150	40.8%

BREAKDOWN OF WATER USAGE			
15	Water Treatment Plant		
16	Wastewater Treatment Plant		
17	System Flushing	117,588	#VALUE!
18	Fire Department Usage	0	
19	DBP Flushing DBP Maintenance	11,113	#VALUE!
20	TOTAL USAGE	128,700	
21	WATER LOSS PERCENTAGE FOR RATE PURPOSES		22.5%

BREAKDOWN OF WATER LOST			
22	Tank Overflows (other than for DBP maintenance)		
23	Excavation Breaks	0	
24	Repaired Line Breaks	0	
25	Unknown Loss	158,450	22.5%
26	TOTAL WATER NOT SOLD OR USED	158,450	
27	COST OF WATER NOT SOLD OR USED	#VALUE!	

"UNKNOWN LOSS" FLOW RATE AND COST:			
28	"Unknown Loss"	158,450	
29	% "Unknown Loss"	22.5%	
30	(insert days of operation during month) Number of Days in Period		
31	"Unknown Loss" per Day (Gallons per Day)		
32	"Unknown Loss" per Minute (GPM)		
33	"Unknown Loss" Cost for Month		#VALUE!

Monthly Water Use Report

Water Utility: Cawood Water District/Pathfork PWSID: KY0483727

For the Month of: JANUARY Year: 2019

1 PRODUCTION COST PER THOUSAND (insert cost)
 2 PURCHASE COST PER THOUSAND (insert cost)

GALLONS

WATER PRODUCED or PURCHASED			
3	Water Produced		0.0%
4	Water Purchased	672,000	100.0%
5	TOTAL PRODUCED AND PURCHASED	672,000	
6	TOTAL COST #VALUE!		

WATER SOLD			
7	Residential	454,904	
8	Commercial		
9	Industrial		
10	Bulk Loading Stations		
11	Wholesale		
12	Other Sales (explain)		
13	TOTAL WATER SOLD	454,904	67.7%
14	TOTAL WATER NOT SOLD	217,096	32.3%

BREAKDOWN OF WATER USAGE			
15	Water Treatment Plant		
16	Wastewater Treatment Plant		
17	System Flushing	0	
18	Fire Department Usage	0	
19	DBP Flushing DBP Maintenance	0	
20	TOTAL USAGE	0	
21	WATER LOSS PERCENTAGE FOR RATE PURPOSES		32.3%

BREAKDOWN OF WATER LOST			
22	Tank Overflows (other than for DBP maintenance)		
23	Excavation Breaks	0	
24	Repaired Line Breaks	0	
25	Unknown Loss	217,096	32.3%
26	TOTAL WATER NOT SOLD OR USED	217,096	
27	COST OF WATER NOT SOLD OR USED	#VALUE!	

"UNKNOWN LOSS" FLOW RATE AND COST:			
28	"Unknown Loss"	217,096	
29	% "Unknown Loss"	32.3%	
30	(insert days of operation during month) Number of Days in Period		
31	"Unknown Loss" per Day (Gallons per Day)		
32	"Unknown Loss" per Minute (GPM)		
33	"Unknown Loss" Cost for Month	#VALUE!	

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

2. Describe in detail the procedure utilized in preparing monthly water use and loss reports, including, but not limited to, the following:
 - a. How the utility calculates water loss, water treatment plant usage, system flushing, and disinfection byproduct flushing.
 - b. Identify by name and job title employees who prepare or assist in the preparation of the reports.
 - c. What is included in the water loss category. Specifically, state whether the utility includes water loss from known leaks and breaks in the water loss category.

Response:

- a. Cawood Water District utilizes the form developed by the Kentucky Rural Water Association (KRWA) to prepare and calculate monthly water use and loss reports. First, the district's produced and purchased gallonage, as well as the gallonage sold to customers, are identified for the applicable period.

Next, the gallonage utilized for water treatment plant purposes, system flushing, fire department usage and disinfection byproduct (DBP) maintenance flushing is determined by the district.

Cawood District's water treatment plant usage is based on the number of times the plant's three (3) water treatment filters are backwashed (cleaned and flushed). Each backwash uses approximately 5,000 gallons of water. Generally, backwashes are performed on a regular 5-hour rotation schedule but may be performed more often if circumstances warrant (e.g., if the turbidimeters show a spike in the turbidity, or excessive rainwaters increase dirt and debris content). Cawood District calculates its system flushing and DBP flushing utilizing the KRWA form/software. Cawood District inserts certain variables (size of the pipe, amount of time of discharge, and pressure) and the number of gallons used is then determined.

Finally, water loss from tank overflows, excavation line breaks, and repair line breaks is determined, again by inputting the relevant variables (size of the pipe, amount of time of discharge, and pressure). Based on all these inputs, Cawood

determines its water loss rate for each period.

- b. Cawood Water District's water use and loss reports are prepared by Grant Cooper, General Manager, and Charles Tomlin, Certified Plant Operator and Operations Manager, Class II A and D.
- c. Cawood Water District includes in the water loss category tank overflows, excavation line breaks, and repaired line breaks. Cawood addresses known leaks and breaks immediately upon discovery in most circumstances, and thus the "known" leaks and breaks it includes in the water loss category are generally repaired at the time of reporting.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

3. State whether the water utility has completed a water loss detection plan.
 - a. If the answer is yes, provide a copy of the last completed water loss detection plan.
 - b. If the answer is no, explain why a water loss detection plan has not been completed.

Response:

Cawood Water District has established a procedure/plan for water loss detection, a copy of which is attached.

WATER LOSS DETECTION PROCEDURE/PLAN

1. TAKE FLOW METER TO LINE ACCESS POINT AND DETERMINE EXISTING FLOW (GPM)
2. BEGIN ISOLATING LINES TO DETERMINE IF GPM IS IMPACTED (RECORD NUMBER AND LOCATION OF LINE THAT IS ISOLATED)
3. CONTINUE TO REPEAT PROCESS ON THE ENTIRE SECTION
4. LISTEN TO METERS IN SECTIONS WHERE LOSS IS OCCURING
5. IF NO METER SHOWS SERVICE LINE LEAKS, THEN START WALKING THE LINE TO FIND LOSS
6. WHEN LOCATED, REPAIR IMMEDIATELY OR AS SOON AS POSSIBLE

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

4. State whether the water utility has completed a comprehensive unaccounted-for water loss reduction plan.
 - a. If the answer is yes, provide a copy of the last completed comprehensive unaccounted-for water loss reduction plan.
 - b. If the answer is no, explain why a comprehensive unaccounted-for water loss reduction plan has not been completed.

Response:

- a.-b. Cawood Water District investigates and addresses leaks on a daily basis but does not currently maintain a comprehensive unaccounted-for water loss reduction plan. Historically, and due in part to the size and design of Cawood's system (which render difficult the isolation of lines requiring repair or replacement), the District's approach has been to quickly locate and repair line issues. However, in conjunction with training provided by the Kentucky Rural Water Association, the District is in the process of developing a more systematic and comprehensive unaccounted-for water loss reduction plan.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

5. Describe and provide the results of all water loss reduction projects that the water utility has initiated from January 1, 2015, to the date of the issuance of this Order.

Response:

Cawood Water District has taken numerous efforts to reduce its water loss, including the acquisition of new equipment (listening device, flow meter, metal detector, hand tools, etc.), an increased emphasis on responsiveness and being proactive, and requiring accountability of all employees. Its water loss reduction projects for the past several years have focused on repairing or replacing service lines and meters (please see the District's Response to Item 11) and ensuring line leaks are quickly located and addressed.

As evidence by the monthly Water Loss Reports filed by Cawood, in the Spring of 2018 the District had successfully reduced its unaccounted-for water loss to approximately 15-20%. However, in or around September of 2018, significant water loss was realized in connection with lines that had been installed and/or damaged by state contractors for the Kentucky Department of Highways as part of the rebuilding/redesign of US 421. These issues along US 421 and in Farmers Mill, which resulted in water losses of roughly three million (3,000,000) gallons per month (an increase of ~25-30% from previous months), appear to have been primarily caused by improper backfilling and inadequate protection for the lines.

Cawood has worked diligently, both in conjunction with state authorities and independently, to address the major issues that arose in the last two quarters of 2018. Earlier this month, Cawood successfully repaired leaks along both US 421 and in Farmers Mill and has seen significant improvement in its system. Cawood expects its water loss will be reduced by at least 15% in next month's reporting, and it continues to investigate the relevant lines to locate and repair ongoing leaks. Cawood has had and continues to have discussions with state authorities to ensure the District is properly compensated for the issues that have arisen.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

6. Provide a copy of the utility's most recent and updated annual and long-range Capital Improvement Plans.

Response:

Please see attached.

CAPITAL IMPROVEMENT PLAN

2019

ENSURE ALL TANKS ARE INSPECTED AND PERFORMING PROPERLY
REPLACE ALL METERS THAT NEED CHANGED AND GET THEM UP TO DATE

2020

REPLACE NON-WORKING VALVES IN CAWOOD AREA
THOROUGHLY EXAMINE PUMP STATIONS AND FIX OR REPLACE AGING COMPONENTS
REPLACE ANY METERS THAT NEED CHANGED OR ARE TEN YEARS OLD

2021

PURCHASE WET TAP (3/4-4 INCH)
REPLACE ANY METERS THAT NEED CHANGED OR ARE TEN YEARS OLD

2022

REPLACE AGING VALVES
REPLACE ANY METERS THAT NEED CHANGED OR ARE TEN YEARS OLD

2023

REPLACE ONE OF THE DODGE TRUCKS TO ENSURE PLANT
MAINTAINS RELIABLE EQUIPMENT
REPLACE ANY METERS THAT NEED CHANGED OR ARE TEN YEARS OLD

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

7. Provide the names of the persons or entities responsible for assisting the utility with capital improvement planning, grant application assistance, engineering design, and construction services.

Response:

Cawood Water District is assisted by the following:

- Richard F. Scruggs, CPA, of Harlan, Kentucky, who assists the District with capital planning, accounting, and related governance issues, among other things.
- Kenneth D. Taylor, P.E., Kenviron, Inc., of Frankfort, Kentucky, who assists the District with engineering design and system planning issues, among other things.
- Cumberland Valley Area Development District, which assists the District with line mapping, system improvement planning, and other miscellaneous issues.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

8. Provide a copy of the utility's preventative maintenance program for the plant, pump, and storage facilities.

Response:

Please see attached.

PREVENTATIVE MAINTENANCE PROGRAM

SOURCE OF SUPPLY

INTAKE	ANNUALLY
WELL	MONTHLY
WELL MOTOR	MONTHLY
WELL STRUCTURE	MONTHLY
WELL ELECTRIC POWER WIRING AND CONTROLS	MONTHLY

TREATMENT / PURIFICATION

SEDIMENTATION BASINE	SEMI ANNUALLY
FILTERS	SEMI ANNUALLY
CLEARWELL	MONTHLY
CHEMICAL FEED EQUIPMENT	DAILY
BUILDINGS	ANNUALLY

STORAGE AND DISTRIBUTION

PUMPING EQUIPMENT	SEMI ANNUALLY
MOTORS ELECTRICAL POWER WIRING AND CONTROLS	SEMI ANNUALLY
WATER STORAGE TANKS	ANNUALLY
HYDRANTS	SEMI ANNUALLY
MAINS	ANNUALLY
VALVES	SEMI ANNUALLY
METERS MASTER METERS	MONTHLY
MASTER METER CALABRATION	ANNUALLY
LEAK DETECTION	DAILY

CONSTRUCTION EQUIPMENT

BACKHOE	DAILY
---------	-------

VEHICLES

D#1	DAILY
D#2	DAILY

VALVES AND BLOWOFF ASSEMBLY

VALVES	SEMI ANNUALLY
BLOW OFF ASSEMBLY	SEMI ANNUALLY

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

9. State whether the water utility has assigned specific personnel the responsibility to detect and fix of water line leaks, and if so, state the names and job titles of such personnel and describe the functions and duties of each.

Response:

Multiple Cawood Water District employees are involved with the detection and repair of water line leaks, including:

- Grant Cooper, General Manager, completing the daily tank draw drop, observing and investigating issues of note, and assisting in locating leaks.
- Charles Tomlin, Certified Plant Operator and Operations Manager (Class II A (treatment) and Class II D (distribution), whose functions and duties include supervising and assisting in locating and repairing line leaks.
- Kenny Skidmore, Maintenance and Labor, whose functions and duties include walking lines to locate leaks, listening to meters, and assisting in the repairing of line leaks.
- Roger Stewart, Maintenance Operator, whose functions and duties include operating heavy equipment and assisting in the replacing and repair of line leaks.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

10. State whether leak detection is conducted on a daily basis, and if not, state the reasons why not.

Response:

Cawood Water District conducts line leak detection on a daily basis.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

11. Provide the number of completed water line leak repairs by category, i.e., mains, service lines, etc. that were completed from September 1, 2018, to the date of the issuance of this Order.

Response:

During the referenced time period, Cawood Water District completed two main line repairs, two branch line repairs, and five service line repairs, as follows:

- BOBS CREEK - 8" MAIN LINE
- TEETERSVILLE TANK - 8" MAIN LINE
- LENARUE - 3" BRANCH LINE
- FARMERS MILL - 3" BRANCH LINE
- CAWOOD LONGWAY - SERVICE LINE
- CRUMMIES - SERVICE LINE
- TEETERSVILLE - SERVICE LINE
- GRAYS KNOB - SERVICE LINE
- GRAYS KNOB 2ND STREET - SERVICE LINE

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

12. Provide copies of each work order generated to investigate leaks reported by customers of the utility from September 1, 2018, to the date of the issuance of this Order.

Response:

Please see attached.



CAWOOD WATER DISTRICT

54 Plant Road • P.O. Box 429
Cawood, KY 40815
(606) 573-3744

JOB INVOICE

No. 09937

12:15 PM

CUSTOMERS ORDER NO.	DATE ORDERED
ORDER TAKEN BY	DATE PROMISED <input type="checkbox"/> A.M. <input type="checkbox"/> P.M.

BILL TO	PHONE
ADDRESS	MECHANIC
CITY	HELPER
JOB NAME AND LOCATION	<input type="checkbox"/> DAY WORK
DESCRIPTION OF WORK	<input type="checkbox"/> CONTRACT
	<input type="checkbox"/> EXTRA

QUANT.	DESCRIPTION OF MATERIAL USED	PRICE	AMOUNT
	4855755		
	She says we have a leak		

HOURS	LABOR	AMOUNT	TOTAL MATERIALS
	MECHANICS 3 B @ 12/13/18		
	HELPERS 1 B @		TOTAL LABOR
I hereby acknowledge the satisfactory completion of the above described work.		TOTAL LABOR	TAX
SIGNATURE		DATE COMPLETED	TOTAL



CAWOOD WATER DISTRICT

54 Plant Road • P.O. Box 429

Cawood, KY 40815

(606) 573-3744

JOB INVOICE

No. 09545

CUSTOMERS ORDER NO.	DATE ORDERED
ORDER TAKEN BY	DATE PROMISED <input type="checkbox"/> AM. <input type="checkbox"/> P.M.

BILL TO	PHONE
ADDRESS	MECHANIC
CITY	HELPER
JOB NAME AND LOCATION	<input type="checkbox"/> DAY WORK
DESCRIPTION OF WORK	<input type="checkbox"/> CONTRACT
	<input type="checkbox"/> EXTRA

leak at meter
Outside

QUANT.	DESCRIPTION OF MATERIAL USED	PRICE	AMOUNT
	<i>45756479</i>		
	<i>NO LEAK</i>		

HOURS	LABOR	AMOUNT	TOTAL MATERIALS
	MECHANICS @		
	HELPERS @		TOTAL LABOR
I hereby acknowledge the satisfactory completion of the above described work.		TOTAL LABOR	TAX
SIGNATURE	DATE COMPLETED	TOTAL	



CAWOOD WATER DISTRICT

54 Plant Road • P.O. Box 429

Cawood, KY 40815

(606) 573-3744

JOB INVOICE

No. 09610

CUSTOMERS ORDER NO.	DATE ORDERED
ORDER TAKEN BY	DATE PROMISED <input type="checkbox"/> A.M. <input type="checkbox"/> P.M.

BILL TO	PHONE
ADDRESS	MECHANIC
CITY	HELPER
JOB NAME AND LOCATION	<input type="checkbox"/> DAY WORK
DESCRIPTION OF WORK	<input type="checkbox"/> CONTRACT
	<input type="checkbox"/> EXTRA
Leak in Road @ CVS market	

QUANT.	DESCRIPTION OF MATERIAL USED	PRICE	AMOUNT
	Ground water		

HOURS	LABOR	AMOUNT	TOTAL MATERIALS
	MECHANICS 13.5 @		
	HELPERS @		TOTAL LABOR
I hereby acknowledge the satisfactory completion of the above described work.		TOTAL LABOR	TAX
SIGNATURE	DATE COMPLETED	TOTAL	



CAWOOD WATER DISTRICT

54 Plant Road • P.O. Box 429
Cawood, KY 40815
(606) 573-3744

JOB INVOICE

No. 09528

CUSTOMERS ORDER NO.	DATE ORDERED
ORDER TAKEN BY	DATE PROMISED <input type="checkbox"/> A.M. <input type="checkbox"/> P.M.

BILL TO	PHONE
ADDRESS	MECHANIC
CITY	HELPER
JOB NAME AND LOCATION	<input type="checkbox"/> DAY WORK
DESCRIPTION OF WORK	<input type="checkbox"/> CONTRACT
	<input type="checkbox"/> EXTRA

D-1500
Leak at meter
Outside

QUANT.	DESCRIPTION OF MATERIAL USED	PRICE	AMOUNT
	5219 7238		
	LEAK ON OUR SIDE		
	NEED TO REPLACE GASKET AT METER		

HOURS	LABOR	AMOUNT	TOTAL MATERIALS
	MECHANICS @		
	HELPERS @		TOTAL LABOR
I hereby acknowledge the satisfactory completion of the above described work.		TOTAL LABOR	TAX
SIGNATURE		DATE COMPLETED	TOTAL



CAWOOD WATER DISTRICT

54 Plant Road • P.O. Box 429

Cawood, KY 40815

(606) 573-3744

JOB INVOICE

No. 09875

CUSTOMERS ORDER NO.	DATE ORDERED
ORDER TAKEN BY	DATE PROMISED <input type="checkbox"/> A.M. <input type="checkbox"/> P.M.

BILL TO	[REDACTED]	PHONE
ADDRESS	[REDACTED]	MECHANIC
CITY	[REDACTED]	HELPER
JOB NAME AND LOCATION		<input type="checkbox"/> DAY WORK
DESCRIPTION OF WORK	Leak at meter	<input type="checkbox"/> CONTRACT
		<input type="checkbox"/> EXTRA

QUANT.	DESCRIPTION OF MATERIAL USED	PRICE	AMOUNT
	4919 24110		
	Fixed leak at meter		

HOURS	LABOR	AMOUNT	TOTAL MATERIALS
	MECHANICS 35 @ CT		
	HELPERS @		TOTAL LABOR
I hereby acknowledge the satisfactory completion of the above described work.		TOTAL LABOR	TAX
SIGNATURE	DATE COMPLETED	TOTAL	



CAWOOD WATER DISTRICT

54 Plant Road • P.O. Box 429
Cawood, KY 40815
(606) 573-3744

JOB INVOICE

No. 09805

CUSTOMERS ORDER NO.	DATE ORDERED
ORDER TAKEN BY	DATE PROMISED <input type="checkbox"/> A.M. <input type="checkbox"/> P.M.

BILL TO	PHONE
ADDRESS	MECHANIC
CITY	HELPER
JOB NAME AND LOCATION	<input type="checkbox"/> DAY WORK
DESCRIPTION OF WORK	<input type="checkbox"/> CONTRACT
	<input type="checkbox"/> EXTRA
Leak at meter	

QUANT.	DESCRIPTION OF MATERIAL USED	PRICE	AMOUNT
	52197238		
	ground water		

HOURS	LABOR	AMOUNT	TOTAL MATERIALS
	MECHANICS P.B. B.S.		
	HELPERS @		TOTAL LABOR
I hereby acknowledge the satisfactory completion of the above described work.		TOTAL LABOR	TAX
SIGNATURE	DATE COMPLETED	TOTAL	
	9/24/18		

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

13. Does the utility have a policy or operating procedure in place that addresses the process and the length of time it should take for the utility to fix a known or reported leaking water line? If yes, provide a copy of the policy or operating procedure.

Response:

Cawood Water District has established a procedure for addressing known or reported leaking water lines, a copy of which is attached. As evidenced by this procedure and the procedure/plan for water loss detection included in response to Item 3, Cawood Water District attempts to address and repair leaks immediately upon discovery.

LINE BREAK PROCEDURE

1. GET CALL OF LEAK OR FIND LEAK
2. GO CHECK TO SEE IF LEAK IS CAWOOD WATER
3. GET PARTS AND EQUIPMENT TO FIX LEAK
4. GO AND START WORK ON LEAK UNTIL IT IS FIXED
5. IF NEEDED, BRING IN SECOND SHIFT TO WORK ON LEAK UNTIL FINISHED
6. FIX ALL SUROUNDINGS BACK TO THE WAY THEY WERE WHEN YOU STARTED
7. PUT UP ALL TOOLS AND EQUIPMENT TO BE READY FOR NEXT TIME

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

14. Provide a general asset ledger listing identifying all new equipment purchased by the utility from January 1, 2018, to the date of the issuance of this Order used in water loss reduction efforts (e.g., listening devices, flow meters, metal detectors, hand tools, etc.).

Response:

Cawood Water District purchased the following equipment during the referenced timeframe for use in water loss reduction efforts:

- Rock Boss rock cutter
- Battery powered lights
- Battery powered saw for cutting pipe
- Jackhammer
- Flow meter
- Metal detector

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

15. Provide the type of training and the total amount of time the utility's personnel have received for leak detection and repairs since January 1, 2015, to the date of the issuance of this Order. List the personnel and dates of training.

Response:

During the week of April 1, 2019, experts from the Kentucky Rural Water Association joined Cawood Water District's personnel to conduct intensive leak detection and repair training, including new or refreshed training using water flow meters, metal detectors, and listening devices. The following employees took part in this training: Grant Cooper, Charles Tomlin, Roger Stewart, Kenny Skidmore, Caleb Jones, and Daniel Osburne. Additionally, Charles Tomlin and two persons now formerly-employed by the District undertook leak detection training through the Kentucky Rural Water Association in 2018, and Charles Tomlin (Certified Plant Operator and Operations Manager, Class II A and D) regularly conducts hands-on training in numerous aspects of operations and distribution. At this time, additional training records have not yet been located but will be provided by supplemental filing if found.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

16. Does the utility have a policy to identify errors that result in missed customer billings or under billings of customer accounts? If so, provide a copy of the policy.

Response:

Cawood Water District reads each customer's meter each month and those readings are presented to the District's office personnel for billing purposes. If a recorded reading appears abnormal, the District will re-read the relevant meter and will generally do so before the bill for that month is issued. In the unusual event that a customer is not billed or is underbilled for a month, the District obtains a proper reading and issues a bill as soon as possible.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

17. If the utility produces and treats water for its distribution system, provide the date that the utility's water treatment plant meter was last tested and state how frequently the utility's water treatment plant meter is tested. Provide a copy of the most recent meter test results.

Response:

Cawood Water District's water treatment plant meter was last tested in April 24, 2018 and is tested annually (and thus is scheduled to be tested again this month). A copy of the most recent meter test results is attached.



The C.I.Thornburg Co.,Inc.

YOUR FIRST CHOICE IN WATER AND WASTEWATER DISTRIBUTOR

740 Enterprise Drive
Lexington, KY 40511
1-800-274-0852

FIELD SERVICE REPORT

Date: 4/24/2018

Sheet: 1 of 1

Customer: Cawood, Ky.

Customer P.O. # _____

Job Site: Cawood WTP

Assigned Technician Michael Shipley
Serv.Call X Billable _____ Warranty _____
Other - Describe Below _____

Contact Ronnie
Phone 606-573-3744
Fax _____
E-mail _____

Calibration Report

Meter Type : McCrometer

Meter Location : WTP

Measuring Device: Clamp on transducers 10" PVC

Maximum Flow Range: 0 - 1000 GPM

Calibration Device Used: Siemens Sitrans F

Temp. Compensation Provided: na

Verification Procedure

Manual Instantaneous Reading : 306 GPM
Meter Instantaneous Reading : 310 GPM

Manual Instantaneous Reading : 308 GPM
Meters Instantaneous Reading : 309 GPM

Manual Instantaneous Reading : 308 GPM
Meters Instantaneous Reading : 308 GPM

Manual Instantaneous Reading : _____
Meters Instantaneous Reading : _____

Adjusted Meters Reading To match Manual Instantaneous Reading ,Using Manufactures Calibration Function
And Using Manual Instantaneous Measurements. _____

Totalization Provided: total x 1
Meters Output Signal: 4 - 20 ma
Recording Device Used: none

Problems / Parts Required: _____

Service Technician Michael Shipley Hours _____ Meter Cal. Equip charge _____

I certify the above work has been completed to my satisfaction : _____

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

18. Provide the dates on which the utility's master meters were last tested and the results of the tests.

Response:

Cawood Water District's most-recent master meter test results are provided in response to Item 17. Additional meter testing and calibration is scheduled, the results of which can be provided by supplemental filing as desired.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

19. Provide the utility's procedure and schedule for testing its master meters and customer meters.

Response:

Cawood Water District's utilizes The C.I. Thornburg Co., Inc. to conduct its master meter testing (e.g., please see test results provided in response to Item 17). Cawood's residential/customer meters are generally replaced rather than tested due to relative costs. Cawood Water District's tests its meters in accordance with the following schedule:

<u>Type of Meter</u>	<u>Testing Frequency</u>
Master Meters	At least annually
Meters 4" and up	At least annually
Meters 3"	At least every 2 years
Meters 2", 1.5", and 1.25"	At least every 4 years
Meters 3/4" - 5/8"	At least every 10 years (replaced)

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

20. State the number of meters that have been replaced by the utility from January 1, 2018, to the date of the issuance of this Order.

Response:

Cawood Water District has replaced 318 residential meters during the referenced time period.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

21. Provide the type of metering equipment, including brands and model numbers, the utility uses.

Response:

Cawood Water District's metering equipment includes the following brands and model numbers:

<u>Brand</u>	<u>Model</u>
RG3	PD-07 AWWA C700
McCrometer	FC101-00-M
Sensus	SR II
Badger	Model 25

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

22. State whether the utility utilizes supervisory control and data acquisition (SCADA) technology within its system.

Response:

Cawood Water District does use SCADA technology within its system.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

23. State whether the utility utilizes telemetry within its system.

Response:

Cawood Water District does use telemetry within its system.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

24. State whether all meters within the utility's distribution area are read monthly. If all meters are not read monthly state the reasons why not.

Response:

Cawood Water District reads each of the meters within its system on a monthly basis.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

25. What training is provided to the utility's meter readers?

Response:

Cawood Water District's meter readers are provided internal, hands-on training by the District's certified Class II Distribution personnel, namely Charles Tomlin, to ensure the meters are read and recorded properly. This training occurs both initially and periodically if an issue occurs or a "refresh" is desired.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

26. Does the utility utilize master meter zones in leak detection? If yes, for each of the utility's master meter zones, provide a monthly comparison of the master meter readings to the total customer meter readings for that zone for December 2018 and January 2019.

Response:

Cawood Water District does not utilize master meter zones for leak detections, but instead monitors zones through a portable flow meter.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

27. State whether the utility uses a system-wide hydraulic model to evaluate the pressure zones and flow in the utility's distribution system.

Response:

Cawood Water District and its third-party engineer, Kenneth Taylor of Kenvirons, Inc., utilize a system-wide hydraulic model to evaluate the District's system's pressure zones and flow.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

28. Does the utility manager regularly report the water loss reduction efforts to the water utility's board of commissioners? Provide copies of any written reports, memorandums, letters, emails, or minutes from January 1, 2018, to the date of the issuance of this Order that details the efforts of the utility manager in reducing water loss as reported to the water utility's board of commissioners.

Response:

Yes, Cawood Water District's manager regularly reports to the Board of Commissioners with respect to water loss and water loss reduction efforts, both informally and formally. Please see attached for representative Board of Commissioners Meeting Minutes that reflect these discussions (and please note that the minutes from April's Board of Commissioners Meeting have not yet been approved or finalized).

CAWOOD WATER DISTRICT
MINUTES OF REGULAR MEETING

APRIL 9, 2019

PRESENT: HAROLD SELLERS, TIM ENGLE, TIM RICE, AND HOWARD FARMER, JR.

AABSENT: MIKE THOMAS

OTHERS PRESENT: GRANT COOPER, RICHARD SCRUGGS, AND KEN TAYLOR.

OPENING: MEETING CALLED TO ORDER BY HOWARD FARMER, JR. - QUORUM PRESENT

MINUTES: MINUTES OF THE PREVIOUS MEETING ON MARCH 12, 2019 WERE REVIEWED: MOTION BY HAROLD SELLER, SECONDED BY TIM RICE TO APPROVE THE MINUTES AS PREPARED. ALL MEMBERS VOTED FOR APPROVAL OF MINUTES.

INVOICES: INVOICES WERE REVIEWED. ON A MOTION BY HAROLD SELLERS TO APPROVE AND PAY INVOICES PRESENTED, AND SECONDED BY TIM ENGLE, WITH ALL MEMBERS VOTING IN FAVOR OF APPROVING AND PAYING INVOICES.

ED LYTTLE PRESENTED HEALTH AND LIFE INSURANCE QUOTES FOR POLICY TO BE RENEWED JUNE 1, 2019. THE WAITING PERIOD PER POLICY IS TO BE CHANGED FROM 90 DAYS TO 60, SAME AS EMPLOYEE POLICY MANUAL. RATES PROVIDED BY CURRENT CARRIER, UNITED HEALTH, WERE MOST FAVORABLE WITH A 10.3% INCREASE IN HEALTH COST AND A 14% INCREASE IN LIFE INSURANCE COST. TIM ENGLE MADE A MOTION TO ACCEPT NEW RATES, AND WAS SECONDED BY HAROLD SELLERS, WITH ALL VOTING IN FAVOR.

HOWARD FARMER PRESENT THE ENGAGEMENT LETTER FROM GOSS AND SAMFORD LAW FIRM FOR THE ISSUE WITH PSC CASE # 2019-00041. TIM RICE MADE A MOTION TO ACCEPT ENGAGEMENT LETTER AS PRESENTED, IT WAS SECONDED BY TIM ENGLE AND APPROVED BY ALL.

ENGAGEMENT LETTER FOR 2018 AUDIT BY KINGSPORT, CPA WAS PRESENTED. HAROLD SELLERS MADE A MOTION TO ACCEPT ENGAGEMENT LETTER AS PRESENTED, WITH SECOND BY TIM ENGLE AND APPROVED BY ALL.

PROJECT UPDATES:

1. PER KEN TAYLOR THE STATUS OF PROJECT TO IMPROVE WATER LINES ON HWY 421 REMAINED UNCHANGED AND SUGGESTED THE BOARD CONTACT DAN MOSELY FOR PROJECT UPDATE.

OLD BUSINESS: WRECKED TRUCK HAS BEEN TAKEN TO CREECH MOTOR FOR REPAIR. PARTS HAVE ARRIVED AND REPAIRS STARTED. SHOULD BE COMPLETED IN NEXT COUPLE OF WEEKS

REPORTABLE PURCHASES: NONE

WATER LOSS REPORT: GRANT PRESENTED REPORT: MARCH WATER LOSS AT 45.3% AND WATER LOSS AT PATHFORK AT 15.8%

OPERATOR'S REPORT:

1. HARRY GIBSON COMPLETED WORK ON WATER LEAK.
2. KENTUCKY WATER CONDUCTED WATER LEAK TRAINING. TWO WATER LEAKS WERE FIXED NEAR GRAYS KNOB CHURCH. WATER LOSS FOR THESE TWO LEAKS WERE 1,000,000 GALLONS PER MONTH FOR ONE AND 890,000 GALLONS PER MONTH FOR THE OTHER. SINCE THESE THREE LEAKS HAVE BEEN REPAIRED, THE PLANT HAS BEEN ABLE TO SHUT DOWN 4.5 TO 5 HOURS PER DAY.
3. METER READERS CONTINUE TO HAVE ISSUES WITH CUSTOMERS' DOGS. GRANT TO SEND LETTER TO THOSE CUSTOMER TO PUT DOGS UP ON METER READING DAY.
4. JOEL PHILLIPS WILL DIP PONDS WITH LONG BOOM. COST TO BE BETWEEN \$3,000 AND \$4,000.

NEW BUSINESS:

1. KEN TAYLOR TO WRITE UP PLAN FOR USE OF \$75,000 GRANT WITH \$25,000 TO BE SPENT ON ASBURY PROJECT AND THE REMAINDER TO CLEAN WATER TANKS. GRANT TO SEE HOW MANY POTENTIAL CUSTOMERS THERE ARE IN ASBURY HOLLOW.

THERE BEING NO FURTHER BUSINESS TO DISCUSS, TIM RICE MADE A MOTION TO ADJOURN MEETING WHICH WAS SECONDED BY TIM ENGLE. ALL VOTED IN FAVOR OF ADJOURNMENT

CAWOOD WATER DISTRICT
MINUTES OF REGULAR MEETING

MARCH 12, 2019

PRESENT: HAROLD SELLERS, TIM ENGLE, TIM RICE, MIKE THOMAS, AND HOWARD FARMER, JR.
OTHERS PRESENT: GRANT COOPER, RICHARD SCRUGGS, AND KEN TAYLOR.

OPENING: MEETING CALLED TO ORDER BY HOWARD FARMER, JR. - QUORUM PRESENT

MINUTES: MINUTES OF THE PREVIOUS MEETING ON FEBRUARY 12, 2019 WERE REVIEWED: MOTION BY MIKE THOMAS, SECONDED BY HAROLD SELLERS TO APPROVE THE MINUTES AS PREPARED. ALL MEMBERS VOTED FOR APPROVAL OF MINUTES.

INVOICES: INVOICES WERE REVIEWED. ON A MOTION BY TIM ENGLE TO APPROVE AND PAY INVOICES PRESENTED, AND SECONDED BY HAROLD SELLERS, WITH ALL MEMBERS VOTING IN FAVOR OF APPROVING AND PAYING INVOICES.

PROJECT UPDATES:

1. PER KEN TAYLOR THE STATE HAS APPROVED FUNDING OF \$325,000, HAS BEEN INCREASED TO APPROXIMATELY \$500,000 TO IMPROVE DISTRIBUTION LINES. KEN TAYLOR PRESENTED PLAN FOR THE IMPROVEMENTS, WITH APPROVAL BY BOARD. KEN TO GIVE COPY OF PLANS TO DAN MOSLEY AND TO HIGHWAY DEPARTMENT.

OLD BUSINESS: WRECKED TRUCK HAS BEEN TAKEN TO CREECH MOTOR FOR REPAIR. PARTS SHOULD BE IN FOR THE REPAIR IN NEXT 2 TO 3 WEEKS.

REPORTABLE PURCHASES: NONE

WATER LOSS REPORT: GRANT PRESENTED REPORT

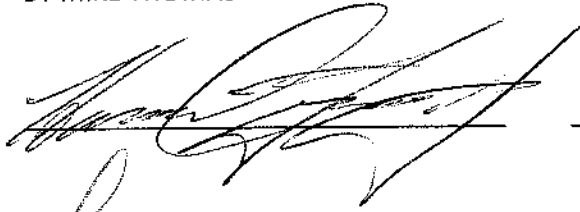
OPERATOR'S REPORT:

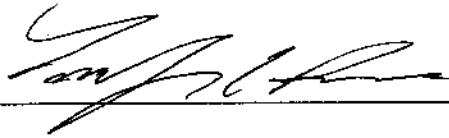
1. HARRY GIBSON CONTINUES WORK ON WATER LEAK. IF HE WORKS, SHOULD BE COMPLETED IN COUPLE OF DAYS. NO PURCHASE ORDER HAS BEEN ISSUED FOR HIS WORK,
2. HAD DIVISION OF WATER INSPECTION: 1. NOT IN COMPLIANCE WITH PLANT OPERATORS- NEED 3 CLASS 2 OPERATIONS AND ONLY HAVE 1. ROGER AND DOUG PLAN TO TAKE CLASS 2 TEST. 2. WATER LOSS DECREASED FROM JANUARY TO FEBRUARY. 3. NEED LAPTOP COMPUTER. BOARD APPROVED PURCHASE OF COMPUTER. 4. METERS TO BEGIN COMING IN NEXT WITH PLANS TO REPLACE 73 METERS NEXT WEEK. 5. ALSO, SENDING PSC MONTHLY REPORT OF METER CHANGES

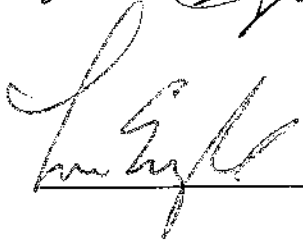
NEW BUSINESS:


1. HOWARD FARMER TO CALL OTIS DOAN TO DISCUSS HARRY GIBSON SITUATION.
2. KEN TAYLOR REPORTED NO CHANGE IN ASBURY HOLLOW PROJECT
3. DISCUSSED PSC CASE NO 2019-00041 THAT WAS ISSUED ON MARCH 12, 2019
4. PLAN SHOULD BE DEVELOPED FOR ROUTINE PLANT MANAGEMENT, MAYBE A CHART SHOWING MAINTENANCE SCHEDULE

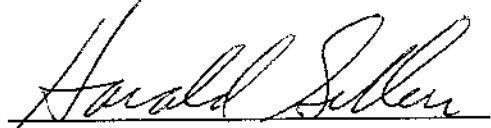
THERE BEING NO FURTHER BUSINESS TO DISCUSS, TIM RICE MADE A MOTION WHICH WAS SECONDED BY MIKE THOMAS TO ADJOURN. ALL VOTED IN FAVOR OF ADJOURNMENT











CAWOOD WATER DISTRICT
MINUTES OF REGULAR MEETING
FEBRUARY 12, 2019

PRESENT: HAROLD SELLERS, TIM ENGLE, TIM RICE, MIKE THOMAS, AND HOWARD FARMER, JR.
OTHERS PRESENT: GRANT COOPER, RICHARD SCRUGGS, AND KEN TAYLOR.

OPENING: MEETING CALLED TO ORDER BY HOWARD FARMER, JR. - QUORUM PRESENT

MINUTES: MINUTES OF THE PREVIOUS MEETING ON JANUARY 8, 2019 WERE REVIEWED: MOTION BY MIKE THOMAS, SECONDED BY TIM RICE TO APPROVE THE MINUTES AS PREPARED. ALL MEMBERS VOTED FOR APPROVAL OF MINUTES.

INVOICES: INVOICES WERE REVIEWED. ON A MOTION BY TIM ENGLE TO APPROVE AND PAY INVOICES PRESENTED, AND SECONDED BY MIKE THOMAS, WITH ALL MEMBERS VOTING IN FAVOR OF APPROVING AND PAYING INVOICES.

PROJECT UPDATES:

1. TAKE NALLY & HAMILTON OFF OF AGENDA FOR FUTURE MEETINGS
2. PER KEN TAYLOR THE STATE HAS APPROVED FUNDING OF \$325,000 TO IMPROVE DISTRIBUTION LINES. KEN AND GRANT TO FIND STARTING POINT NEAR CHEVROLET. KEN RECOMMENDED TO USE OF PVC PIPE FOR REPLACEMENT PIPE.
3. TIM RICE SUGGESTED WHEN A CONTRACTOR PERFORMS WORK THEN SOMEONE FROM CAWOOD WATER DISTRICT SHOULD BE PRESENT WHEN CONTRACTOR IS WORKING. HE ALSO RECOMMENDED THAT CAWOOD WATER DISTRICT BE NAMED AS ADDITIONAL INSURED ON CONTRACTOR'S LIABILITY AND WORKERS COMP POLICIES.

OLD BUSINESS: WRECKED TRUCK HAS BEEN TAKEN TO CREECH MOTOR FOR REPAIR.

REPORTABLE PURCHASES: NONE

WATER LOSS REPORT: GRANT PRESENTED REPORT

OPERATOR'S REPORT:

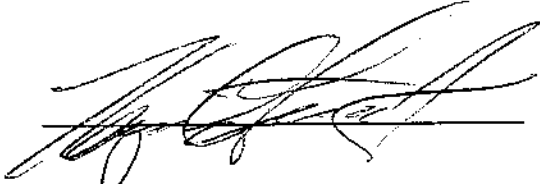
1. GRANT REVIEWED FINDINGS FROM VISIT FROM PSC. PLANT WAS OK AND PONDS NEED TO BE DIPPED. 449 METERS NEED TO BE REPLACED AS SOON AS PRACTICAL. GRANT TO SUBMIT PLAN FOR REPLACEMENT COMPLETION.
2. GRANT REPORTED CUSTOMER STEALING WATER AT ██████████. COUNTY ATTORNEY FRED BUSROE TO FILE COMPLAINT.
3. WATER LEAK FROM 3" PIPE FIXED AT TEETERSVILLE

4. FOR PERIODS WHEN TAMMY IS ABSENT FROM WORK, GRANT ASKED IF HE COULD FILL IN FOR HER IN HER ABSENCE.

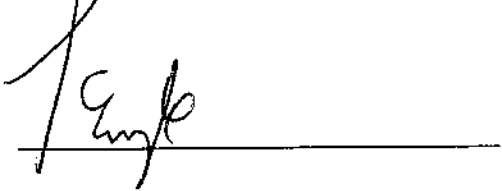
NEW BUSINESS:

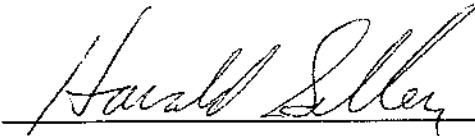
1. NEW EMPLOYEE HANDBOOK PRESENTED TO EACH BOARD MEMBER
2. NEW EMPLOYEES ARE TO BE DRUG TESTED BEFORE BEING HIRED, RANON DRUG TESTING OF CURRENT EMPLOYEES HAS BEEN PUT IN PLACE. DR DAHAN WILL DO DRUG TESTING

THERE BEING NO FURTHER BUSINESS TO DISCUSS, TIM RICE MADE A MOTION WHICH WAS SECONDED BY MIKE THOMAS TO ADJOURN. ALL VOTED IN FAVOR OF ADJOURNMENT











**CAWOOD WATER DISTRICT
MINUTES REGULAR MEETING**

January 8, 2019

PRESENT: HAROLD SELLERS, TIM ENGLE, TIM RICE, MIKE THOMAS, HOWARD FARMER JR,
GRANT COOPER, CHARLES TOMLIN, TAMMY GOODIN

OPENING: MEETING CALLED TO ORDER BY HOWARD FARMER JR. QUORUM PRESENT

CITIZENS COMMENTS: NONE

MINUTES: OF DECEMBER 11, 2018 AND THE SPECIAL MEETING HELD ON DEC 27, 2018
MEETING REVIEWED. MOTION BY TIM ENGLE, SECONDED BY MIKE THOMAS, TO APPROVE THE
MINUTES AS PREPARED. VOTE: HOWARD FARMER JR – YES; HAROLD SELLERS – YES; TIM RICE-
YES.

INVOICES: INVOICES REVIEWED. MOTION MADE BY TIM ENGLE, SECONDED BY MIKE THOMAS,
TO PAY ALL INVOICES PRESENTED. VOTE: HOWARD FARMER JR – YES; TIM RICE- YES; HAROLD
SELLERS – YES.

PROJECT UPDATES: NONE.

REPORTABLE PURCHASES:

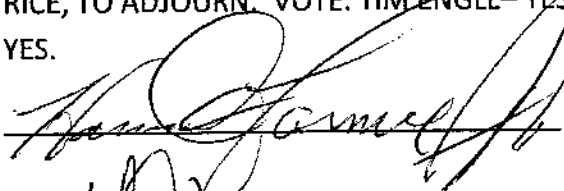
- TAMMY GOODIN – OFFICE COMPUTER

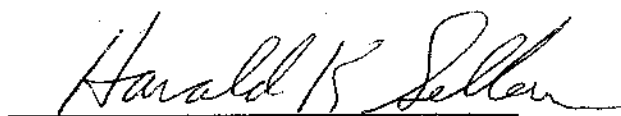
GRANT COOPER: SUBMITTED THE WATER LOSS & REPORTS

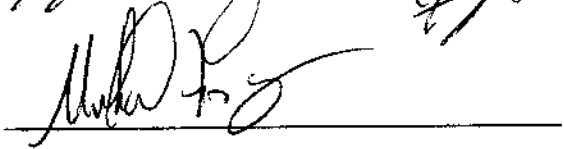
- PATHFORK – 30.3% CAWOOD – 49.9%

- MOTION MADE BY TIM RICE FOR GRANT COOPER TO CONTACT HARRY GIBSON ABOUT THE FARMERS MILL PROJECT ON JANUARY 9, 2019 TO INFORM HIM THAT THE FARMERS MILL PROJECT NEEDS TO BE COMPLETED BY JANUARY 18, 2019 OR A NEW CONTACTOR WILL BE BROUGHT IN TO FINISH THE PROJECT. THE BOARD MADE A DECISION THAT IF HARRY GIBSON DID NOT COMPLETE THE PROJECT BY JANUARY 18, 2018, THAT HE WILL NOT BE PAID FOR ANY WORK THAT HAS BEEN DONE AT THE FARMERS MILL LOCATION. SECOND BY TIM ENGLE; VOTE: HOWARD FARMER JR-YES; TIM RICE-YES; HAROLD SELLERS-YES
- DISCUSSION WAS HELD FOR GRANT COOPER (MANAGER) TO HIRE KENNETH SKIDMORE AND CALEB JONES. THE BOARD APPROVED FOR THEM TO BE HIRED AND START WORK ON JANUARY 9, 2019. VOTE: MIKE THOMAS-YES; TIM RICE-YES; HAROLD SELLERS-YES; HOWARD FARMER JR-YES; TIM ENGLE-YES

THERE BEING NO FURTHER BUSINESS, MOTION MADE BY MIKE THOMAS, SECONDED BY TIM RICE, TO ADJOURN. VOTE: TIM ENGLE- YES; HAROLD SELLERS- YES; HOWARD FARMER JR - YES.









October 2018 Board Meeting Cawood Water District

Members Present:

Howard Farmer

Tim Engle

Harold Sellers

Tim Rice

Mike Thomas

Also Present:

Ken Taylor

Richard Scruggs

Motion to open:

Tim Engle 1st

Howard Farmer 2nd

All yes

Minutes Approval:

Tim Engle 1st

Mike Thomas 2nd

All yes

Invoice Approval:

Tim Rice 1st

Harold Sellers 2nd

All yes

Project Updates:

Ken Taylor:

- **Asbury Hollow**
 - 3 out of the 4 residents want city water
 - Coal Severance monies can be used to pay for tap on fees
 - Plumbing permits must be obtained by resident
 - After discussions board wants to have a meeting with Judge Executive Dan Mosley for discussion of project and coal severance monies
- **Booster Pump stations:**
 - Billy Moore – Longway Drive, Cawood Hill
 - Tim Rice – Tway Hill
 - Allen Johnson – Ready Mix Road
 - After discussions of these stations board would also like to discuss projects with Judge Mosley

Chlorine Analyzer:

Rebuild old unit - \$3604.40 for parts and labor

New unit - \$4074.00 for unit and labor for install

Mike Thomas 1st

Howard Farmer 2nd

All yes in favor for new unit to be installed

Water loss:

Cawood – 35%

Pathfork – 55%

Richard Scruggs –

Updated board on working with Lana Pace. Work is progressing well and will continue until Lana's retirement at the end of 2018.


Ronnie Williams – Gen. Man. Of C.W.D has turned in letter of resignation and will stay with company until end of 2018 to help train new hire if company so desires.

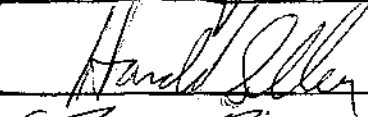
Motion to adjourn:


Tim Rice 1st


Tim Engle 2nd

All yes









Sept. 2018 Board Mtg. Cawood Water District

Members Present:

Howard Farmer

Harold Sellers

Tim Engle

Mike Thomas – Not Present

Visitors:

Ken Taylor

Richard Scruggs

Terry Sellers

Motion to open:

Harold Sellers 1st

Tim Rice 2nd

All yes

Project updates:

Ken Taylor:

- Asbury Hollow, no new updates at this time.
- Fire Station completed and all water samples have returned clean.

- Suggests meetings with M. Calebs (engineer) of Ky. State Hwy. Dept. concerning Hwy. 421 water line project.

Lana Pace:

- Turned in her letter of retirement to the board which will take place on 12/31/2018.

Richard Scruggs:

- Mr. Scruggs is working closely with Lana Pace concerning the transition of Lana's retirement and Richard taking on her duties.
- Water loss reports are as follow:
 - o Cawood -32.9%
 - o Pathfork -19.8%

Howard Farmer:

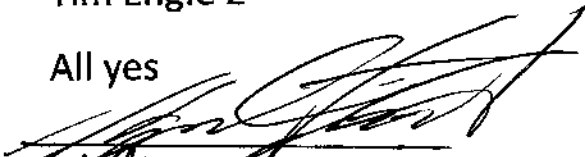
- Will contact Dan Mosley (Judge Executive) concerning a meeting with M. Calebs from Ky. Hwy. Dept.

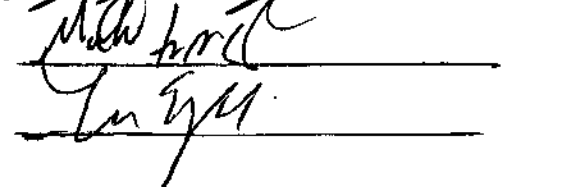
Motion to Adjourn:

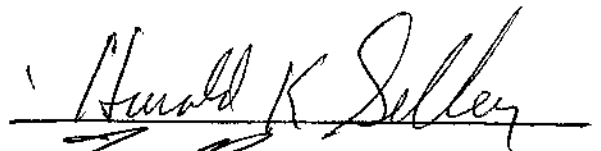
Tim Rice 1st

Tim Engle 2nd

All yes







July 2018, Board Meeting, Cawood Water District

Members Present:

Howard Farmer

Harold Sellers

Tim Engle

Tim Rice

Mike Thomas – not present – on vacation

Motion to open:

Tim Rice 1st

Tim Engle 2nd

New projects:

Asbury Hollow water line extension – tabled until further investigation

New Trucks:

All in favor to buy new trucks under the fleet program instead of used trucks.

Members want to check into bid process and delivery date.

Tim Rice will email M.D. Goss (attorney) to clear up process before proceeding.

Minutes and Invoices:

Harold Sellers 1st

Tim Rice 2nd

All yes

Water loss:

Cawood – 16.3%

Pathfork – 12.9%

Tanks to be cleaned:

Discussion on pricing, order of work to be done, and length of time to complete said work

New Business:

No new business

Lana Pace:

Motion was made by Tim Rice, Howard Farmer 2nd, all in favor of:

Requesting a letter of resignation from Lana Pace (financial officer) to be presented to the Cawood Water District Board by August 2018 board meeting, (8/14/18). The resignation will take effect no later than 12/31/2018, but during the time from 8/14/2018 - 12/31/2018, L. Pace will work with and aid in the transition of new hire (to be determined by CWD board).

The period of 8/14/2018 – 12/31/2018 will also include L. Pace relinquishing any and all Cawood Water District property including but not limited to: financial records, ledgers, checking account material, any hardware/software.

Richard Scruggs:

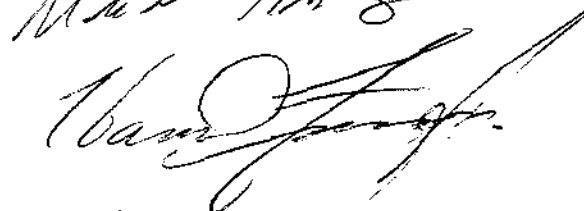
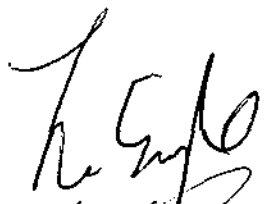
Motion was made by Howard Farmer, Harold Sellers 2nd, to have Mr. Scruggs present at August 2018 board meeting (8/14/2018) to discuss Mr. Scruggs' future involvement with CWD. All in favor. Harold Sellers to contact Mr. Scruggs.

Motion to adjourn:

Tim Rice 1st

Tim Engle 2nd

All in favor



June 2018 Board Meeting – Cawood Water District 6/12/2018

Members Present:

Howard Farmer

Mike Thomas

Harold Sellers

Tim Rice

Tim Engle

Motion to open:

Mike Thomas 1st

Tim Engle 2nd

All Yes

Minutes Approval:

Howard Farmer 1st

Mike Thomas 2nd

All Yes

Invoices Approval:

Tim Engle 1st

Tim Rice 2nd

All Yes

Project Updates:

Ken Taylor Present – No new updates

Old Business:

PSC proposed merger-

- Tim Rice asked about the 2 questions of stipend and other state utilities that pay a stipend and the raise given to employees to replace stipend, and who will answer these 2 questions.
- Tim Engle made the motion for Tim Rice to call Mark David Goss and enquire about these 2 questions.
- Mike Thomas 2nd
- All Yes

Test Holes-

-Ronnie Williams showed the board pictures and notes of the 3 test holes that were dug.

- Tim Rice made motion to email pictures to David Fuson, State Highway Engineer in Manchester, KY.

- Mike Thomas 2nd
- All Yes

Reportable Purchases –

None

Operator's Report –

- Water Loss – Cawood – 16.3%

Pathfork – 10.7%

- Dalton Baker has been moved from Part Time to Full Time and will be raised from minimum wage to \$8.00/hour.

- Tim Engle 1st

- Mike Thomas 2nd

- All yes


New Business –

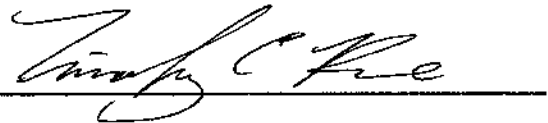
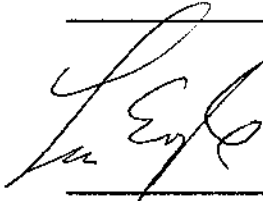
- Asbury Hollow water line extension-
 - o County needs a cost estimate
 - o Ken Taylor will do when needed
 - o Ronnie Williams will speak with County to see if all residents (10) have been contacted and if all families are interested in the water connection
- Question was raised about Tammy Goodin's (clerk) check that has a \$38.00 Miscellaneous payment on it


- Harold Sellers questioned the checks for Richard Scruggs of \$7,200.00 and \$4,750.00 for Darrell Callebs for 50% of services

Motion to Adjourn:

- Harold Sellers 1st
- Howard Farmer 2nd
- All Yes

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 _____  _____

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**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

29. For the period from January 1, 2015, to the date of the issuance of this Order, discuss whether the water utility's board of commissioners has placed any deadlines or target dates on the utility for achieving a reduction in the amount of water loss.

Response:

Cawood Water District's Board of Commissioners has not identified specific deadlines or target dates to achieve a reduction in the District's water loss. However, water loss and the District's attempts to mitigate such loss are regularly discussed at Board meetings, and the District continues to pursue ongoing efforts to limit water loss as much as possible.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

30. Provide a list of the utility management's five most critical projects, listed in order of priority, notwithstanding the opinions of the county judge/executive nor the opinions of the water district board of commissioners.

Response:

Please see below:

- a. Install water flow meter pits to section off system and better locate water loss;
- b. Address issues with water line installed by state contractor along us-421;
- c. Work on and replace valves that are not working properly;
- d. Work on replacing and getting up to date on all meters; and
- e. Work on getting all maintenance up to date and ensuring scheduled maintenance is performed.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

31. Provide the total salary of the general manager/superintendent of the water utility for calendar years 2017 and 2018.

Response:

The General Manager's salary for 2017 and 2018 was \$41,000.00.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

32. Provide a copy of the most recent signed employment contract between the general manager/superintendent and the utility.

Response:

Cawood Water District and its general manager have not entered into such an employment contract.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

33. State the average age, with the high and low ages, of the utility's distribution mains.

Response:

The average age of Cawood Water District's distribution mains is approximately 20 years. The oldest distribution main is approximately 29 years and its most-recently installed distribution main is approximately 10 years.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

34. "Service connection," as defined by 807 KAR 5:066(6), means the line from the main to the customer's point of service, and shall include the pipefittings and valves necessary to make the connection. State the average age of the utility's service connections.

Response:

The average age of Cawood Water District's service connections is approximately 8 years.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

35. Has the utility mapped the entire distribution area for service connections to include mapping of its system, and identifying parts of its system with repeated breaks?

Response:

No, Cawood Water District has not mapped its full system for service connections but does maintain detailed drawings of much of its system and has identified parts of its system with repeated breaks or related issues.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

36. Provide a copy of the utility's policy for dealing with apparent theft of water.

Response:

Cawood Water District takes the theft of water seriously; when an apparent theft of water is discovered, pictures are taken and any other evidence or devices used in the theft are recovered. Attempts are then made to determine who may be responsible (owner or renter, typically), and all information is gathered and presented to the County Attorney's Office for criminal prosecution.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

37. Provide documentation of any request by the utility from January 1, 2017, to the date of the issuance of this Order to the county attorney or commonwealth attorney's office for the prosecution of any person for the theft of water.
- a. State whether the utility provided information related to the request for prosecution to the county attorney or commonwealth attorney's office for this time frame.
 - b. If the response to Item 37a. above is confirmed, state to which office the utility provided the information, whether any action was taken on behalf of the utility to prosecute any person for theft of water, and provide copies of the documentation and correspondence related to the prosecution.

Response:

- a.-b. Cawood Water District has provided information to the Harlan County Attorney's Office to assist in the prosecution of water theft during the relevant timeframe; please see attached for information and documentation sent during late February, 2019. Typically, the County Attorney's Office will act on Cawood's information, initiate a legal proceeding, serve the relevant parties, and obtain relief for the District. To Cawood's knowledge, action has not yet been taken on the information it most-recently provided.

CAWOOD WATER DISTRICT



Me and Charles was reading meters on January 24,2019 when we got to Morris lane in upper Elcomb at [REDACTED], we found a meter that should have been lock. Someone had cut the ears that lock the meter off and turned it on. We proceeded to call the office with meter number and location of meter and see if it should stay off, when we got conformation that it should be off we proceeded to take the meter off.

Went back to [REDACTED] on February, 24 2019 to check on lines and box where we took meter out. Home renter had found old PRV in another meter box and straight piped the water in doing so the broke the welding on the setter and made it start leaking. I took pictures and removed the PRV from the box.

Cawood Water District confirmed with the land owner [REDACTED] that [REDACTED] and [REDACTED] resides at Morris lane.

Below is the total lose and past due bill

PAST BILL	\$325.67
31,752 GALLONS WATER	\$260.70
LOCK	\$10.00
REPLACE SETTER	\$320.00
TOTAL LOST	\$916.37



**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

38. Provide the utility's policy for determining whether a leak adjustment to a customer's account is warranted and identify the person(s) that approve leak adjustments.

Response:

Cawood Water District determines whether a leak adjustment is appropriate on a case-by-case basis. First, Cawood identifies the leak and determines whether it is/was on the customer side or the District's side of the meter. If the leak was on the customers side and has been repaired, Cawood requires customers to provide receipts to verify that there was a leak repaired on their side of the meter; Cawood will generally recognize a reasonable adjustment once every twelve months, depending on the circumstances, as set forth in its Tariff. The responsible persons to sign-off on a leak adjustment are Grant Cooper, General Manager, and Tammy Goodin, Office Clerk.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

39. State whether the utility's tariff permits the utility to adjust late charges when making a leak adjustment.

Response:

Cawood Water District's tariff is not explicit with respect to this issue, but adjustment of late charges has occurred when a customer's bill is adjusted due to leak or similar issue.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

40. Provide a copy of the utility's most recent Leak Adjustment Worksheet that was used by the utility and explain what software is being used by the utility to generate the Leak Adjustment Worksheet. If the utility is using Microsoft Excel to generate the Leak Adjustment Worksheet, then provide a copy of the most recent Leak Adjustment Worksheet used by the utility in electronic format with all rows unprotected and all formulas intact.

Response:

Cawood Water District has uploaded its Leak Adjustment Worksheet, a Microsoft Excel file, as part of its response, and has provided same on a compact disc with its hardcopy submission.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

41. State whether the utility has conducted a comprehensive water audit, and if so, provide a copy of the most recent water audit.

Response:

Cawood Water District has not conducted a comprehensive water audit, due in part to the size and design of Cawood's system (which render difficult the isolation of lines for testing and repair). The District is moving towards a more comprehensive and systematic approach to addressing the management of its system through the repair/installation of additional valves, development and adherence to maintenance schedules, and other actions discussed herein.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

42. Provide a copy of the utility's procedure for monitoring and documenting withdrawals from the utility's distribution system by fire departments. If no document exists, explain the process in detail.
- a. For each fire department that made a withdrawal from the utility's system from January 1, 2018, to the date of the issuance of this Order, provide a copy of the fire department's estimate of its withdrawal.
 - b. For any instance in which a fire department failed to provide an estimate of withdrawal from January 1, 2018, to the date of the issuance of this Order, state the actions the utility implemented to correct the failure.
 - c. Provide the date on which the utility last imposed a penalty on a fire department for the fire department's failure to submit a quarterly report on its water usage.
 - d. Provide a sample copy of each type of report form that the utility provides to fire departments.
 - e. Provide the fourth quarter of the 2018 fire protection water usage, by month, and describe the formula relied upon, identifying all variables, and all assumptions and workpapers utilized to produce this information.

Response:

When a fire department must make a withdrawal from Cawood Water District's system, the department subsequently provides an estimate of the gallonage withdrawn and it is logged on the District's water loss report under fire department.

- a. The fire department has historically provide its estimates telephonically, which are then input into the Fire Department Tab of the KWRA Microsoft Excel Worksheet utilized by the District. Cawood Water District has uploaded this Worksheet as part of its response and has provided same on a compact disc with its hardcopy submission.
- b. Cawood Water District is not aware of an instance during the referenced timeframe in which a fire department failed to provide an estimate of withdrawal.

- c. Upon information and belief, Cawood Water District has not issued such a penalty.
- d.-e. Attached hereto are the Fire Department – Water Usage Report Forms for September 2018 through December 2018. Cawood Water District utilizes the formulas embedded within the Fire Department tab of the KWRA Worksheet that has been electronically provided.

Fire Department - Water Usage Report Form

KRS 278.170(3) 807 KAR 5:095 Section 9

Any city, county, urban-county, charter county, fire protection district, or volunteer fire protection district ("User") may withdraw water from the utility's water distribution system for the purpose of fighting fires or training firefighters at no charge on the condition that it maintains estimates of the amount of water used for fire protection and training during the calendar month and reports the amount of this water usage to the utility no later than the 15th day of the following calendar month.

Any city, county, urban-county, charter county, fire protection district, or volunteer fire protection district that withdraws water from the utility's water distribution system for fire protection or training purposes and fails to submit the required report on water usage in a timely manner shall be assessed the cost of this water.

A non-reporting user's usage shall be presumed to be 0.3 percent of the utility's total water sales for the calendar month.

<input type="text"/>	(name of Fire Department)	Month	SEP
<input type="text"/>	(name of Water System)	Year	2018

unit conversion factor	29.83
coefficient value	0.95

Date	Hydrant Location and/or Number	Reason Operated	Total Minutes Operated	Nozzle size (typically 2.5 or 4.5)	Pitot Pressure	GPM	Gallons Flowed	Estimated Flow if Pitot not used

Total Gallons for Month	0
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Fire Department - Water Usage Report Form

KRS 278.170(3) 807 KAR 5:095 Section 9

Any city, county, urban-county, charter county, fire protection district, or volunteer fire protection district ("User") may withdraw water from the utility's water distribution system for the purpose of fighting fires or training firefighters at no charge on the condition that it maintains estimates of the amount of water used for fire protection and training during the calendar month and reports the amount of this water usage to the utility no later than the 15th day of the following calendar month.

Any city, county, urban-county, charter county, fire protection district, or volunteer fire protection district that withdraws water from the utility's water distribution system for fire protection or training purposes and fails to submit the required report on water usage in a timely manner shall be assessed the cost of this water.

A non-reporting user's usage shall be presumed to be 0.3 percent of the utility's total water sales for the calendar month.

	(name of Fire Department)	Month	OCT	
	(name of Water System)	Year	2018	

unit conversion factor	29.83
coefficient value	0.95

Date	Hydrant Location and/or Number	Reason Operated	Total Minutes Operated	Nozzle size (typically 2.5 or 4.5)	Pitot Pressure	GPM	Gallons Flowed	Estimated Flow if Pitot not used

Total Gallons for Month	0
--------------------------------	----------

Fire Department - Water Usage Report Form

KRS 278.170(3) 807 KAR 5:095 Section 9

Any city, county, urban-county, charter county, fire protection district, or volunteer fire protection district ("User") may withdraw water from the utility's water distribution system for the purpose of fighting fires or training firefighters at no charge on the condition that it maintains estimates of the amount of water used for fire protection and training during the calendar month and reports the amount of this water usage to the utility no later than the 15th day of the following calendar month.

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A non-reporting user's usage shall be presumed to be 0.3 percent of the utility's total water sales for the calendar month.

(name of Fire Department)

Month
Year

NOV
2018

(name of Water System)

unit conversion factor 29.83
coefficient value 0.95

Date	Hydrant Location and/or Number	Reason Operated	Total Minutes Operated	Nozzle size (typically 2.5 or 4.5)	Pitot Pressure	GPM	Gallons Flowed	Estimated Flow if Pitot not used
11/28/2018	Cawood Church of GOD	fire	45.00	2.5	100	1771	79,702	
11/15/2018	Cawood Fire Station	fire	30.00	2.5	120	1940	58,206	

Total Gallons for Month

Fire Department - Water Usage Report Form

KRS 278.170(3) 807 KAR 5:095 Section 9

Any city, county, urban-county, charter county, fire protection district, or volunteer fire protection district ("User") may withdraw water from the utility's water distribution system for the purpose of fighting fires or training firefighters at no charge on the condition that it maintains estimates of the amount of water used for fire protection and training during the calendar month and reports the amount of this water usage to the utility no later than the 15th day of the following calendar month.

Any city, county, urban-county, charter county, fire protection district, or volunteer fire protection district that withdraws water from the utility's water distribution system for fire protection or training purposes and fails to submit the required report on water usage in a timely manner shall be assessed the cost of this water.

A non-reporting user's usage shall be presumed to be 0.3 percent of the utility's total water sales for the calendar month.

<input type="text"/>	(name of Fire Department)	Month Year	DEC
<input type="text"/>	(name of Water System)		2018

unit conversion factor	29.83
coefficient value	0.95

Date	Hydrant Location and/or Number	Reason Operated	Total Minutes Operated	Nozzle size (typically 2.5 or 4.5)	Pitot Pressure	GPM	Gallons Flowed	Estimated Flow if Pitot not used

Total Gallons for Month

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

43. Explain how the utility accounts for flushing when determining water loss for its system.

Response:

Cawood Water District calculates its system flushing utilizing the KRWA form/software by inserting certain variables (size of the pipe, amount of time of discharge, and pressure) to determine the number of gallons flushed. The District accounts for system flushing as water used, not water lost, consistent with the relevant Worksheet.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

44. Provide the type of flushing equipment that the utility uses.

Response:

Cawood Water District performs system flushing manually utilizing pipe and turn key and dichlorination tablets.

**Cawood Water District
Case No. 2019-00041
Requests for Information contained in
Appendix C to the Commission's Order entered March 12, 2019**

45. Provide the utility's system flushing records, by month, from January 1, 2018, to the date of the issuance of this Order, and describe the formula relied upon, identifying all variables, and all assumptions and workpapers utilized to produce this information.

Response:

Please see attached.

FLUSHING OF LINES

CAWOOD WATER DISTRICT

General Manager RONNIE WILLIAMS

Year 2018

CHDRINE

DATE	LOCATION OF HYDRANTS OR BLOW-OFFS	LINE SIZE	EST G.P.M.	APPROX. TIME OF FLUSHING	WATER USED APPROX.	FLUSHED BY
1-17	gray knob BR	4	1.2	10 min		Rw/DA
2-1-18	Long Way	2	1.4	10 min		Rw/RW
2-6-18	Long Way	2	1.4	10 min		Rw/BB
2-6-18	gray knob BR	4	1.0	15 min		Rw
✓ 3-6-18	Day Ln	2	2.0	5		Rw/RW
✓ 3-6-18	Hanna DR	2	2.0	10		Rw
✓ 3-6-18	QUAILS RD	2	2.0	10		Rw
✓ 3-6-18	DENHAM ST	2	2.0	10		Rw
✓ 3-6-18	Fulsh HYDRANT ^{NCAA ST}	2 1/2	2.0	15		Rw
✓ 3-6-18	Fulsh HYDRANT ^{Cawood Hill}	2 1/2	3.0	30		Rw
✓ 3-6-18	Long Way	2	2.0	5		Rw
✓ 3-6-18	Hwy 1137 end of line	3	1.8	10		Rw
✓ 3-7-18	Creek RD	3	1.8	20		Rw
✓ 3-7-18	Meda DR	3	1.8	10		Rw
✓ 3-7-18	Sawmill HO	2	1.4	20		Rw

FLUSHING OF LINES

CAWOOD WATER DISTRICT

General Manager RONNIE WILLIAMS

Year 2018

DATE	LOCATION OF HYDRANTS OR BLOW-OFFS	LINE SIZE	EST G.P.M.	APPROX. TIME OF FLUSHING	WATER USED APPROX.	FLUSHED BY
✓ 3-7-18	Hwy 3001 Quails Rd	4	1.8	15		RW
✓ 3-7-18	Brook HO	2	1.8	15		RW
✓ 3-7-18	River side store	3	1.8	15		RW
✓ 3-19-18	QUAILS RD	2	2.0	5		RW/RW
✓ 3-21-18	Day Branch	3	1.9	10		RW/RW
✓ 3-21-18	Fee DR	3	1.9	10		RW/RW
✓ 3-21-18	LEWIS LOOP	3	1.4	10		BB/DA
4-11-18	Hwy 987	4	1.5	10		RW/RW
4-11-18	3-Point	2	1.5	30		RW/RW
4-16-18	6th ST	3	1.7	30		RW/SD/DA

FLUSHING OF LINES
CAWOOD WATER DISTRICT

General Manager _____

Year _____

DATE	LOCATION OF HYDRANTS OR BLOW-OFFS	LINE SIZE	EST G.P.M.	APPROX. TIME OF FLUSHING	WATER USED APPROX.	FLUSHED BY
4-20-18	GULSTON	3"	1.2	15 min		DA BR
4-25-18	Federal	3"	1.4	10 min		RW BB
4-6-18	Robson HWY 987	4"	1.4	30 min		RW
4-6-18	3-POINT	2	1.3	20 min		RW
4-17-18	HWY 987	4	1.4	30 min		RW
4-17-18	3-POINT	2	1.4	30 min		RW
4-27-18	HWY 3001	4	1.6	30 min		RW
4-16-18	GRAY KNOB	3	1.5	45 min		RW
4-20-18 5-1-18	6 th ST GRAY KNOB	3	1.5	45 min		RW
5-3-18	MARY ALICE PUMPS STATION	4	1.4	10 min		RW
5-4-18	HWY 2425 FH	2.5	1.4	15 min		RW
5-4-18	VANOUVER LN FH	2.5	1.4	15 min		RW
5-10-18	APP CHALL ACED FH	2.5	1.3	40 min		RW
5-18-18	WOLA ST FH	2.5	1.9	20 min		RW

FLUSHING OF LINES

CAWOOD WATER DISTRICT

General Manager Ronnie Williams

Year 2018

DATE	LOCATION OF HYDRANTS OR BLOW-OFFS	LINE SIZE	EST G.P.M.	APPROX. TIME OF FLUSHING	WATER USED APPROX.	FLUSHED BY
6-7-18	Hwy 3001	3	1.3	10 min		
6-7-18	Allen RD	2	1.3	10 min		
6-7-18	Shelter House RD	3	1.3	30 min		
6-7-18	Powell DR	3	1.3	10 min		
6-7-18	End of 1138	3	1.3	10 min		
6-7-18	Hwy 421 FH	2 1/2	1.3	5 min		
6-7-18	Sulphur Springs RD	3"	1.3	10 min		
6-7-18 6-7-18	End of 568	3	1.3	60 min		
6-8-18	End of 421	3	1.3	30 min		
6-8-18	Sikamore RD	3	1.3	30 min		
7-5-18	End of 568	3	1.4	60 min		
7-9-18	Tank Crn	3		45 min		
7-17-18	End of 421	3		30 min		
7-20-18	Sikamore RD	3		30 min		

FLUSHING OF LINES

CAWOOD WATER DISTRICT

General Manager Ronnie Williams

Year 2018 - OCT

DATE	LOCATION OF HYDRANTS OR BLOW-OFFS	LINE SIZE	EST GEN. Chl.	APPROX. TIME OF FLUSHING	WATER USED APPROX.	FLUSHED BY
10-23-18	Farmers Mill	3 in	1.2	10 min	22,800	B.B. R.U
10-29-18	Farmers Mill	3 in	1.2	20 min	45,600	B.B. R.W C.T
10-25-18	Plant Road - Clearwell	6 in	2.0	15 min	68,000	C.T.
10-21-18	CRANKS	3	1.6	20	45,624	RW
10-23-18	CRANKS	3	1.3	15	34,000	RW
10-15-18	MARY ALICE	6	1.9	1.5	137,000	RW BB CT
10-17-18	CREEK RD CAWOOD	3	1.6	20	45,100	BB/CT
10-17-18	PINE BRANCH	3	2.0	15	34,000	BS CT/BB
10-25-18	GRAYS-KNOB	3	1.7	10	23,000	BB/BS
10-3-18	BOBS - CREEK	6	2.0	10	91,000	BB
10-14-18	LITTLE CREEK - 2425	6	1.9	10	91,000	BB-RW CT
10-31-18	SMITH	3	1.6	10	25,000	CT RW
10-20-18	TEETERSVILLE	6	1.3	20		BB
10-25-18	GULSTON	6	1.2	15		BB CT
10-28-18	STILLHOUSE	8	1.9	15		BB CT RW

FLUSHING OF LINES

CAWOOD WATER DISTRICT

General Manager Ronnie Williams

Year December 2018

DATE	LOCATION OF HYDRANTS OR BLOW-OFFS	LINE SIZE	EST G.P.M.	APPROX. TIME OF FLUSHING	WATER USED APPROX.	FLUSHED BY
12-8	Bob's creek	3 inch		20 mins		R.W. C.T.
12-10	Bob's creek	3 inch		20 mins		B.B. B.S.
12-10	Crank's creek ⁵⁶⁸	6 inch		20 mins		B.B. C.T.
12-11	LONG WAY	3		10		CT
12-13	LONG WAY	3		15		CT RW BB
12-14	LONG WAY	3		20		BB CT
12-16	LONG WAY	3		25		RW CT
12-17	LONG WAY	3		30		BB CT
12-19	CREEK RD	3		25		BB CT
12-22	HWY 72	6		40		BB
12-22	TEETERSVILLE	6		10		RW
12-24	ST. LOUIS	8		10		BB
12-27	CRUMMIES	6		10		BB
12-28	SMITH	6		8		CT BB

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

ELECTRONIC INVESTIGATION INTO)
EXCESSIVE WATER LOSS BY KENTUCKY'S) Case No. 2019-00041
JURISDICTIONAL WATER UTILITIES)

VERIFICATION OF GRANT COOPER

COMMONWEALTH OF KENTUCKY)
COUNTY OF Harlan)

Grant Cooper, General Manager of Cawood Water District, being duly sworn, states that he has supervised the preparation of the responses of Cawood Water District to the Requests for Information contained in Appendix C to the Commission's Order entered March 12, 2019 in the above-referenced proceeding and that the matters and things set forth in those responses are true and accurate to the best of his knowledge, information and belief, formed after reasonable inquiry.

[Handwritten signature of Grant Cooper]
Grant Cooper

The foregoing Verification was signed, acknowledged and sworn to before me this 11th day of April, 2019, by Grant Cooper.

[Handwritten signature of Misty League]
NOTARY PUBLIC
Commission Expiration: 3-01-2022
FID# 596357