

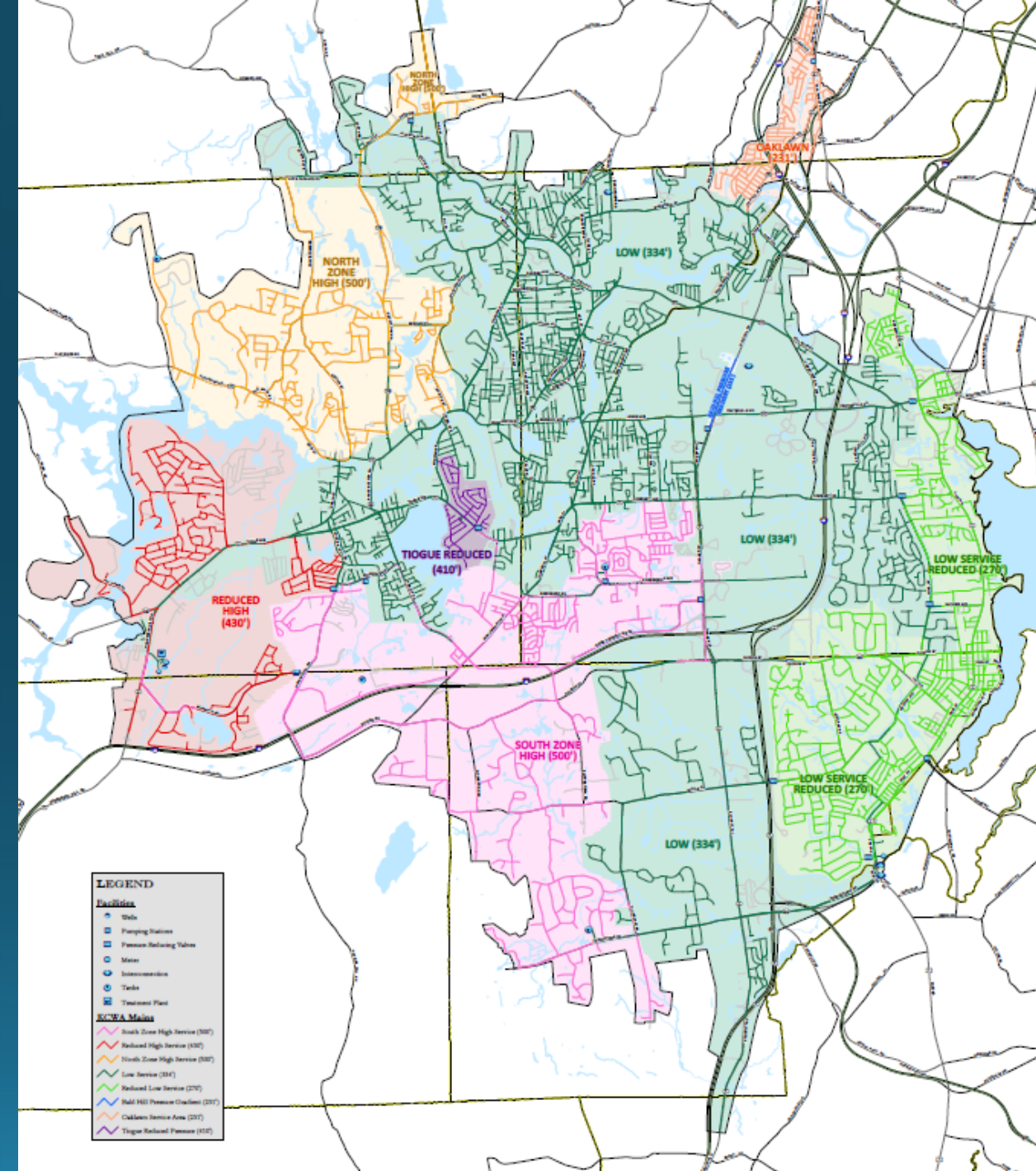


Kent County Water Authority Meter and Billing Investigation Results



David L. Simmons PE
Kent County Water Authority

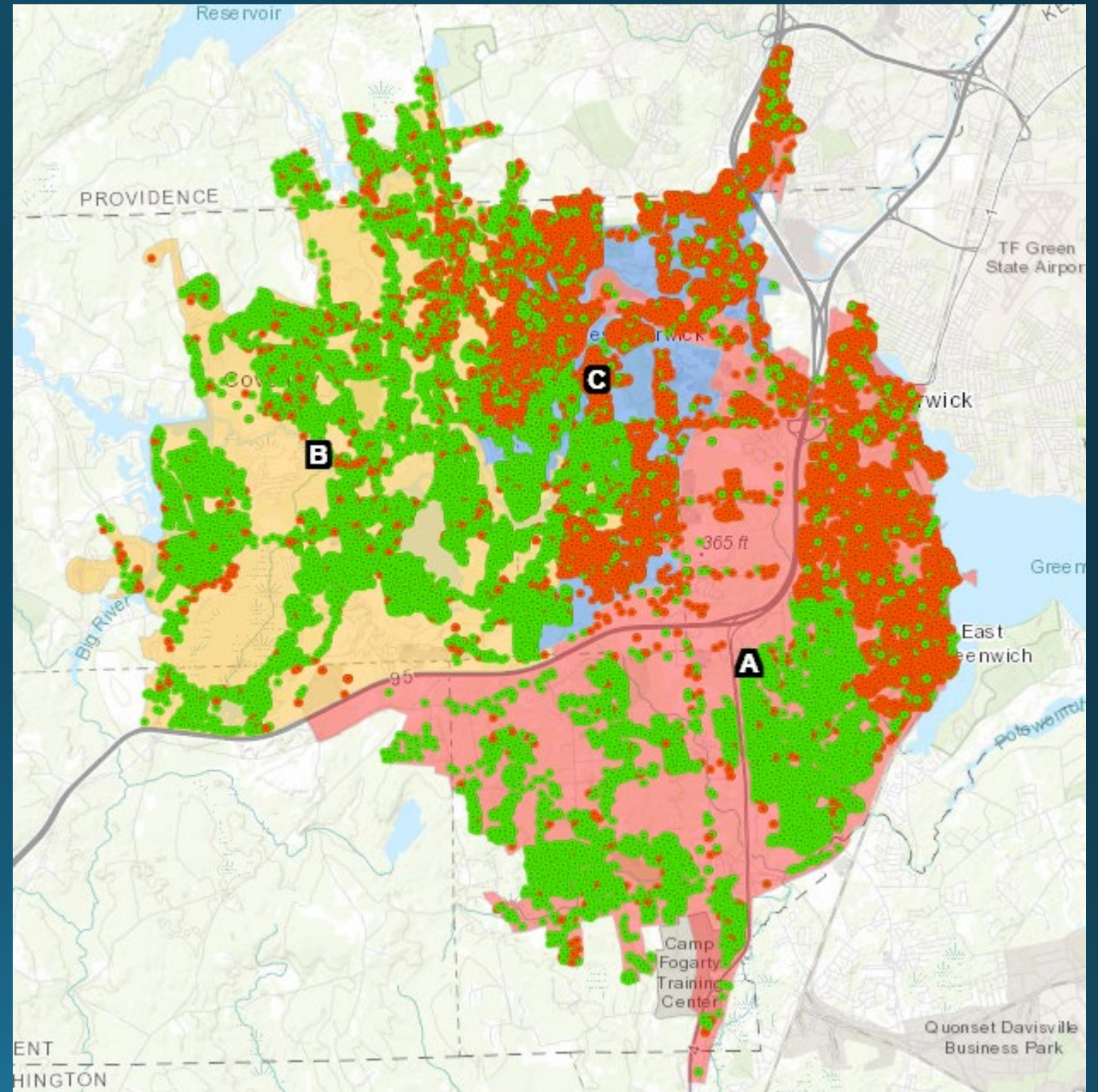
- Kent County Water Authority is a regional authority that services approximately 27,500 customers and 90,000 people within eight communities.
- The services are separated into eight pressure zones based on elevation.
- There are 40 pieces of infrastructure utilized to maintain flow and pressure throughout the system



Number of active customers

KCWA # OF ACTIVE CUSTOMERS	
WITHIN TOWN/CITY	
Friday, January 1, 2021	
TOWN/CITY	TOTAL
COVENTRY	8,483
WEST GREENWICH	395
EAST GREENWICH	4,052
HOPE/SCITUATE 02831	439
NORTH KINGSTOWN	11
WARWICK	4,528
WEST WARWICK	8,420
CRANSTON 02923 02920	923
TOTALS	27,251
* ADJUSTED FOR COMPOUND METER BILLING AND MONTHLY ACCOUNTS	

- Customers are billed in three billing cycles A, B, and C, respectively
- The map on the right shows the geographical area for each cycle.
- This map is available at our website <https://kentcountywater.org/activeprograms.aspx> and depicts the number of new meters installed to date
- The program started in June of 2019 and The total number of meters installed as of January 21, 2021 is 14,733.



Summer Billing Investigation Statistics

<u>KCWA Summer Billing Investigation Statistics as of January 21, 2021:</u>	
SEPTEMBER 2020 BILLING CYCLE (CYCLE A - WARWICK/EAST GREENWICH) - USAGE PERIOD (½ May-June-July-½ Aug)* The total number of bills sent for the September 2020 Warwick/East Greenwich Billing Cycle (Cycle A) These bills are received by customers in early October for water used (½May -June-July-½Aug)	9,042
Number of billing inquiries/disputes received from September billing	0
OCTOBER BILLING CYCLE (CYCLE B- COVENTRY) - USAGE PERIOD (½ June-July-Aug-½ Sept)* The total number of bills sent for the October 2020 Coventry Billing Cycle (Cycle B) These bills are received by customers in early November for water used (½June-July-Aug-½Sept):	9,976
Number of billing inquiries/disputes received from October billing**	524*
NOVEMBER BILLING CYCLE (CYCLE C -WEST WARWICK) - USAGE PERIOD (½ July-Aug-Sept-½ Oct)* The total number of bills sent for the November 2020 West Warwick Billing Cycle (Cycle C) These bills are received by customers in early December for water used (½July-Aug-Sept-½Oct):	8,327
Number of billing inquiries/disputes received from November billing	32
TOTAL KCWA BILLS SENT INCLUDING SUMMER 2020 USAGE * It takes 2-3 weeks to read meters and up to an additional 2 weeks to check and process the bills. **All cycle B complaints were received after Nov 5, 2020 Facebook posts with several hundred comments on Coventry, RI Biggest Town in the Smallest State, four Channel 10 prime time reports, two Channel 12 prime time reports, one Channel 6 report, four discussions on Gene Valicenti Radio Show on WPRO, and a half dozen articles written in various local new papers and digital media.	27345

Summer Billing Investigation Statistics

Total number of investigations requested to KCWA as of January 21, 2021:	556
Total number of investigations completed by KCWA as of January 21, 2021:	556
Total number investigated cases of extreme usage $\geq 200\%$ relative to past summers:	29
Total number of investigated cases of moderate usage $>100\% < 200\%$ relative to past summers:	72
Total number of investigated cases of reasonable increased usage $\leq 100\% > 0\%$ relative to past summers:	313
Total number of investigated cases of reduced usage $\leq 0\%$ relative to past summers:	142
Average increase in usage on all accounts investigated	42%
Average increased daily use in Gallons Per Day (GPD) on all accounts investigated based on average 100-day usage period	142 GPD
Average increased daily use in Gallons Per Minute (GPM)	0.098 GPM
Total number of completed investigations where the bill was determined correct:	539
Total number of completed investigations where the bill was incorrect ¹ :	17
Total number KCWA investigations that are in process as of 1-21-21:	0
Total number investigations that have not been started as of 1-21-21:	0
Percentage of investigated bills found in error to date relative to the whole ² :	0.06%
Percentage of investigated bills found in error to date ³ :	3.0%
KCWA hours spent on special investigations to date ⁴ :	417
<p>1 Manual reading entry errors into billing system by KCWA. Three bills in error were underbilled, not overbilled.</p> <p>2 This statistic was calculated by taking 17 errors divided by the 27345 bills sent.</p> <p>3 This statistic was calculated by taking 17 errors divided by the 539 complaints received. There were over 1000 inquiries resolved over the phone not included in this statistic</p> <p>4 Hours calculated using an average time of 45 minutes per investigation to complete the 8 steps.</p>	

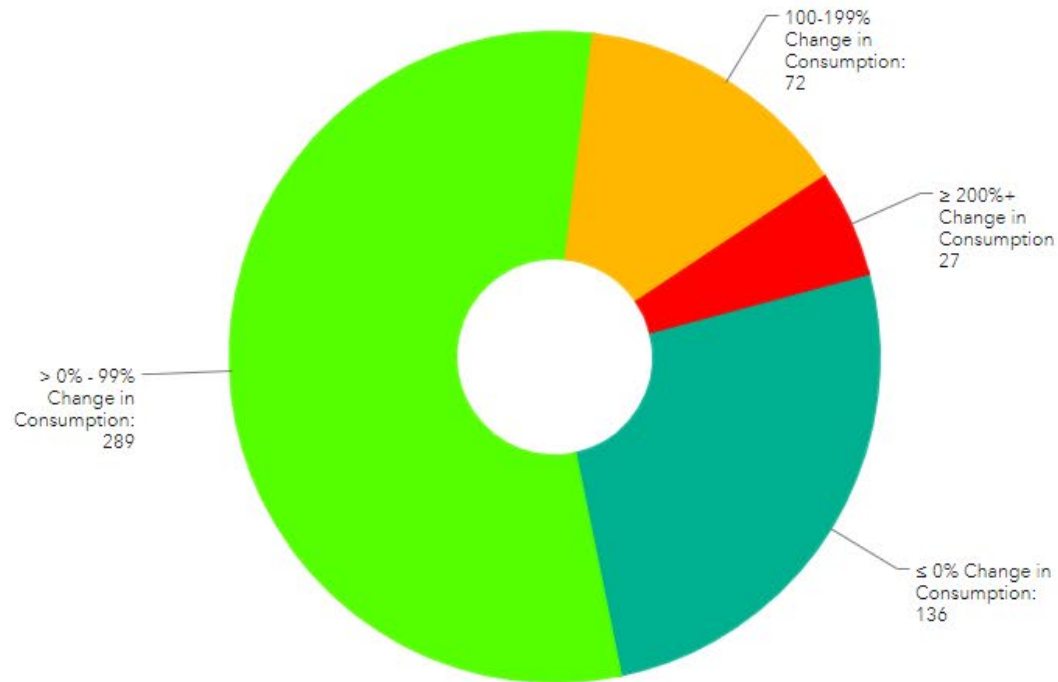
8 step investigation process

- 1. Cover letter
- 2. Investigation form
- 3. Understanding your bill
- 4. Consumption history tabular
- 5. Consumption history graph
- 6. Old meter – new meter
- 7. Meter slip (slip generated hand-written and application)
- 8. Data log graph (only available on new meters)

Map showing results

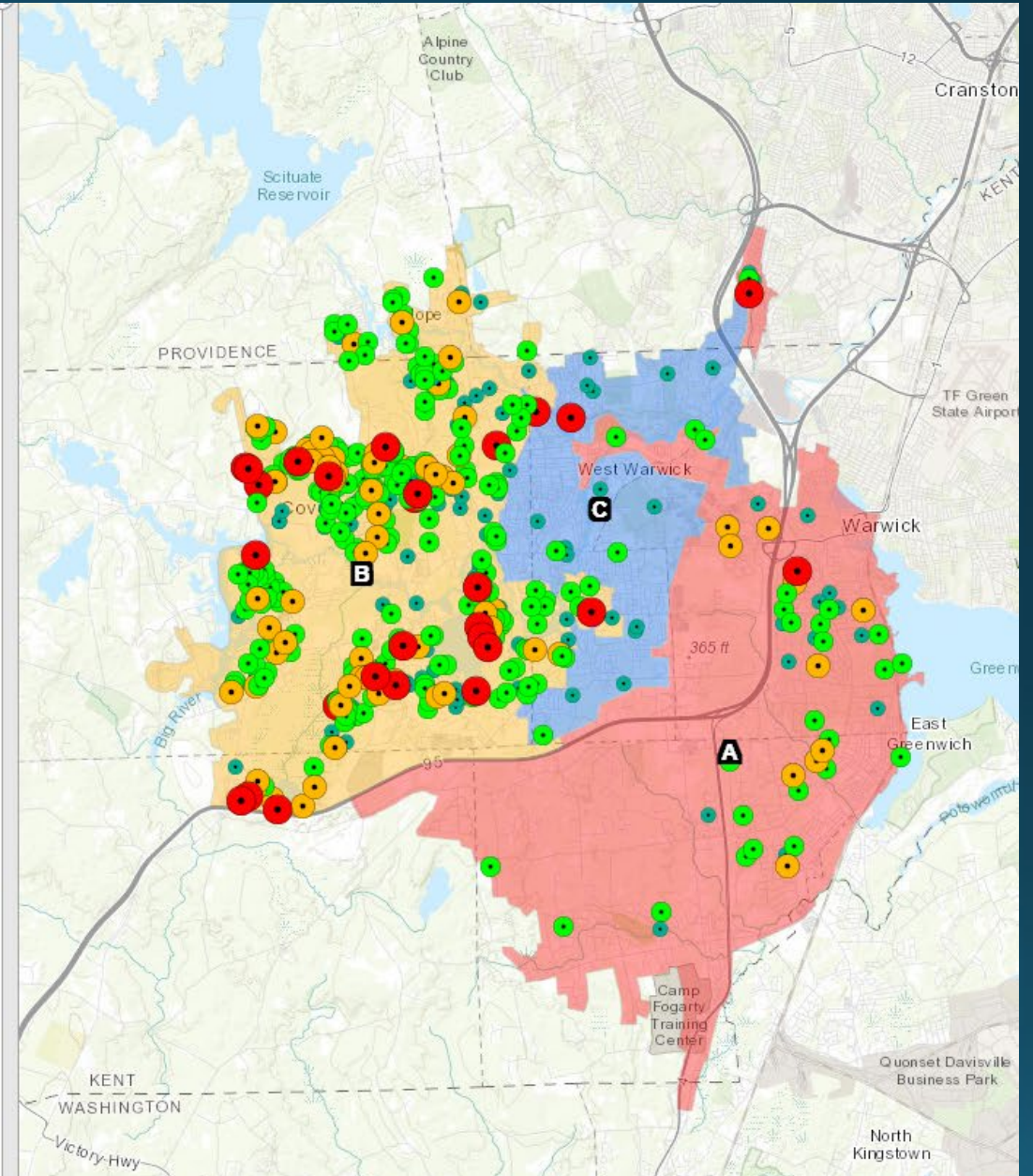
(note: this is a live document available on our website and it changes daily as information is added)

Investigation Results



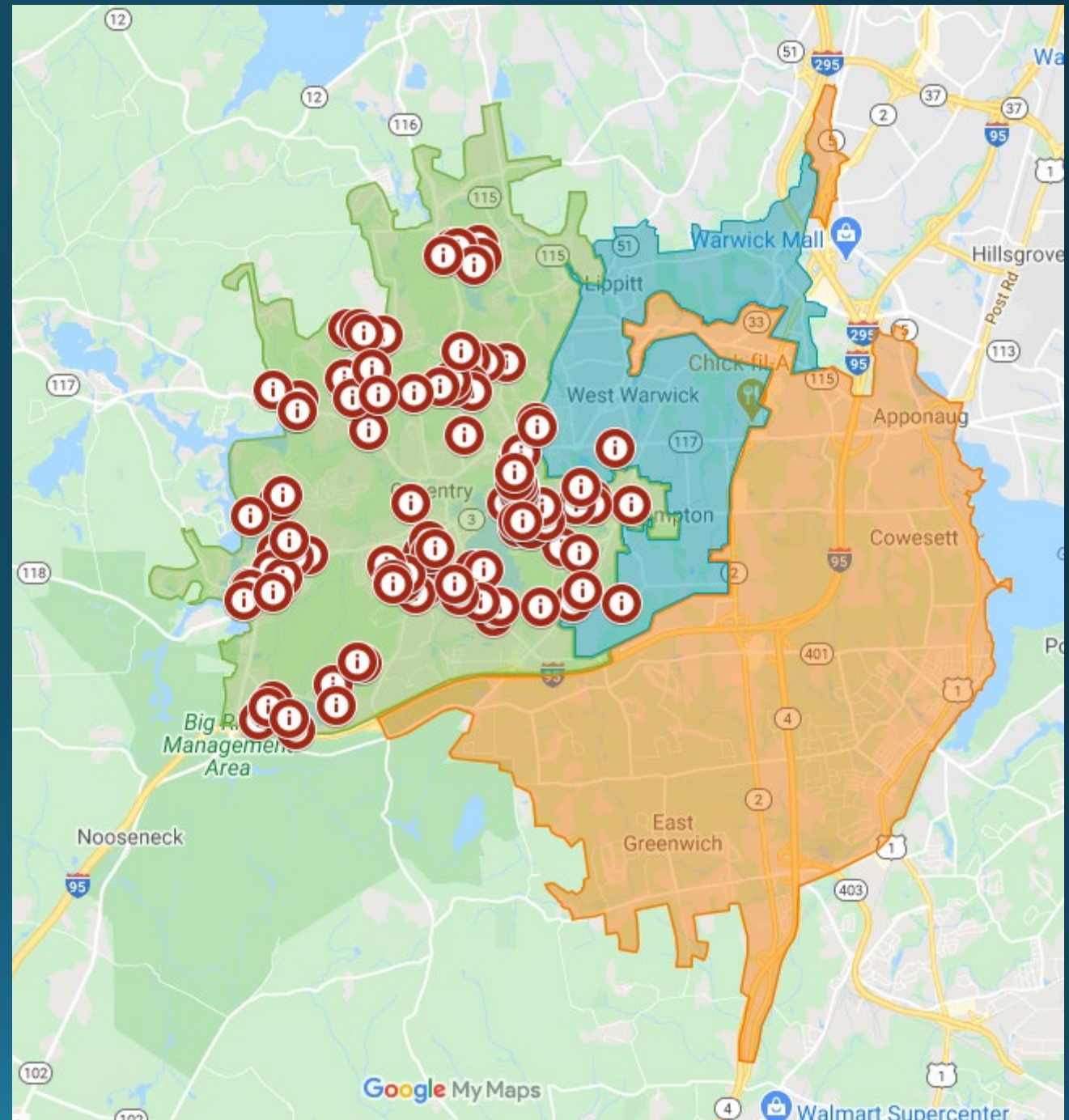
● ≤ 0% Change in Consumption:	25.95%	● > 0% - 99% Change in Consumption:	55.15%
● 100-199% Change in Consumption:	13.74%	● ≥ 200%+ Change in Consumption:	5.15%

Thus far we have found that 425 / 524 (~ 81%) investigations have either revealed no change/ a decrease in consumption between billing periods, or expected slight increases due to summer



Example Map Showing Delivered Reports

- http://kcwagis.com/invest_reports/105183_Redacted_FINAL.pdf



High Use Example

INTERPRETING YOUR USAGE

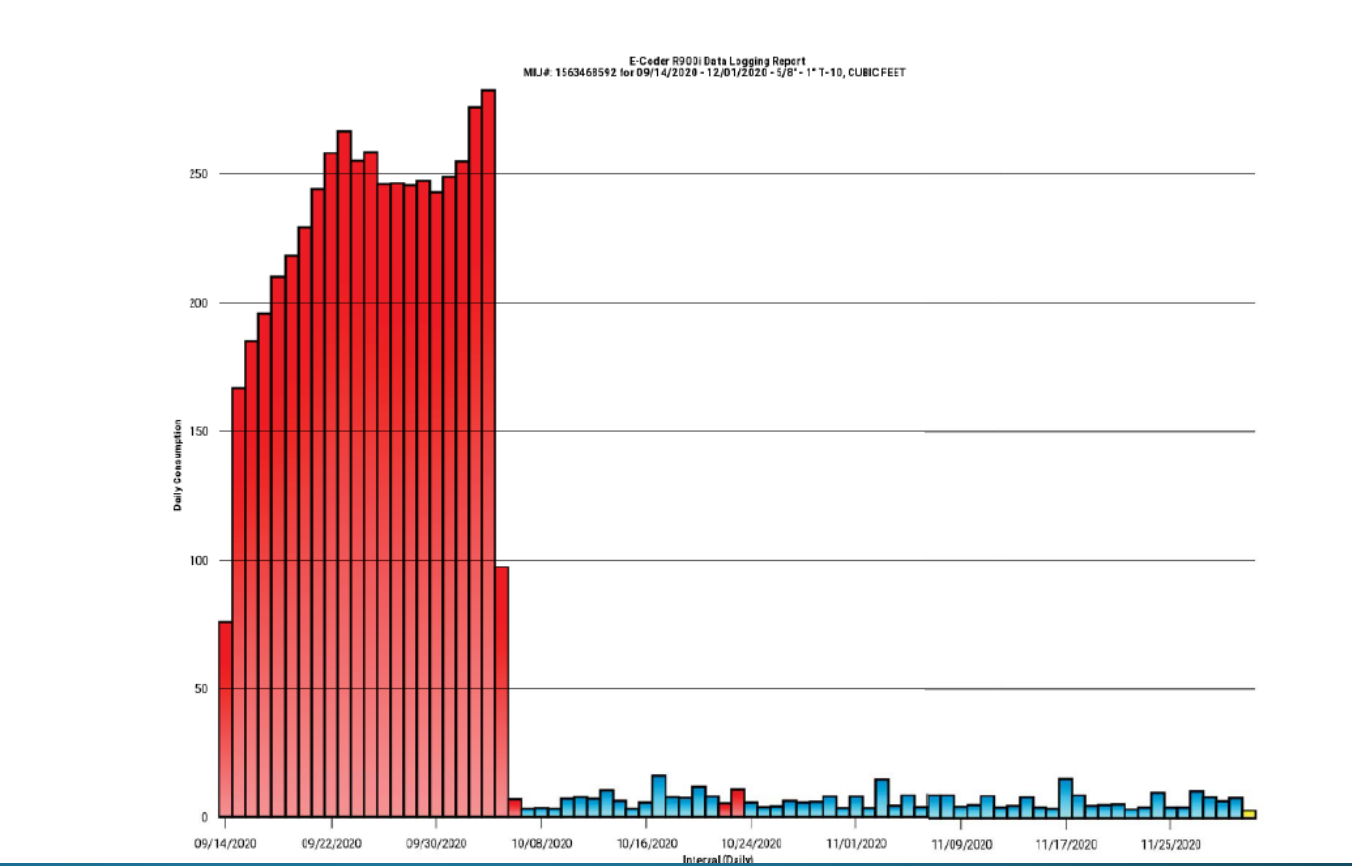
These new meters store 90 days of historical usage information. They check for usage every 15 minutes, for a grand total of 96 observations, per day.

If there is an elevated usage detected then the meter generates a "flag". There are two major flags - intermittent and/or continuous use, respectively.

Continuous - When usage is identified for all 96 measurements in a day. This usually indicates a problem such as a leak in your home.

Intermittent / Continuous - When usage registers in more than 50 of the 96 daily periods (roughly 50%). Many customers will register a mixed flag with their typical daily use.

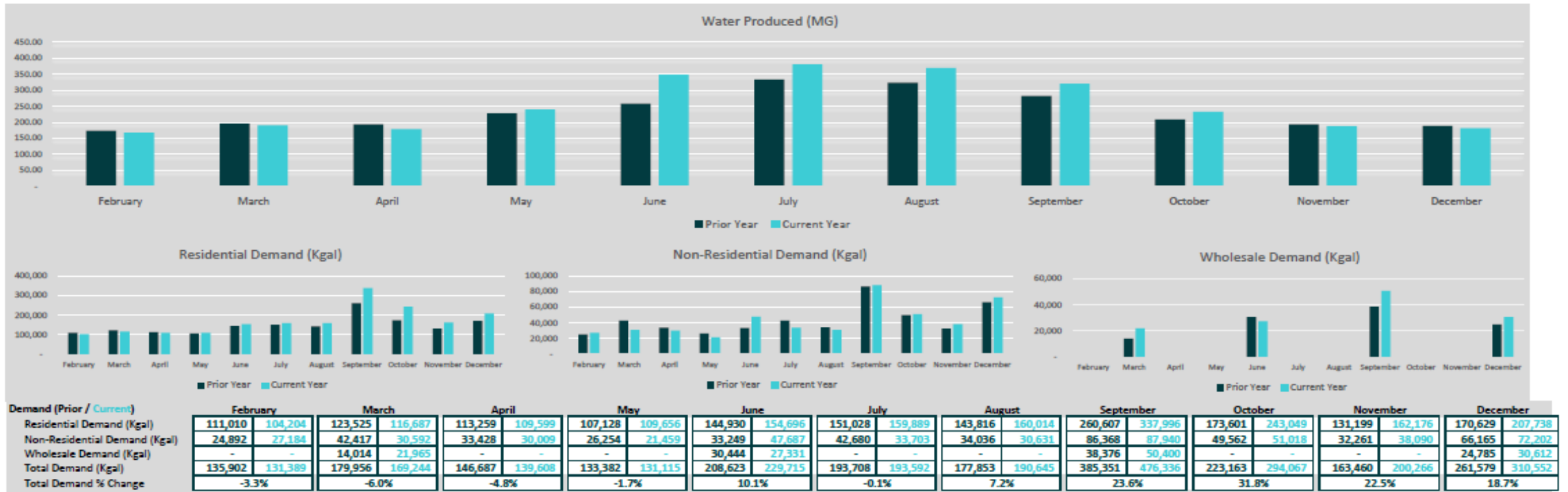
Interval End Time	Interval Reading	Interval Consumption (cuft)	Consumption Flag
10/05/2020 06:29	4947.44	11.93	Continuous
10/05/2020 07:29	4954.51	7.07	Intermittent
10/05/2020 08:29	4956.76	2.25	Intermittent
10/05/2020 09:29	4956.77	0.01	Intermittent



Production Statistics Comparing 2019 to 2020

COVID-19 Impact Model

Kent County Water Authority Submission for PUC Docket 5026



Page 1 of 3

[KCWA production statistics comparing May through Oct for years 2019 and 2020:](#)

Total production into system May through Oct 2020 in gallons	1,894,390,000
Total production into system May through Oct 2019 in gallons	1,634,100,000
Total production increase from 2019 to 2020 May through Oct in gallons:	260,290,000

Other water systems reporting record consumption this year

- Warwick Water (As of Friday Jan 22, 2021 they are handling 475 high use /billing complaints) Warwick Water Services about 27,000 customers and uses the same Neptune meters as KCWA and is on quarterly billing.
- Providence Water , which services 60% of the state, had some of the highest consumption amounts in their recorded history. Providence Water is on monthly billing.
- Pawtucket Water
- Portsmouth
- Bristol County Water Authority

FAQs

Q: What is causing the rate hike at KCWA?

A: The bills generated are based on usage. If a customer uses more water it costs more. There was a rate reduction of 15% in September of 2020.

Q: Why does this appear to be only happening at KCWA?

A: Actually, it is not only at KCWA. Warwick Water that also bills quarterly is experiencing the same complaints and saw the same production and usage increases as KCWA. Warwick Water has found in all cases investigated to date the same reasons noticed by KCWA.

1. Record use for irrigation and recreation
2. Elevated use from people at home due to Covid and from extra consumption in general.
3. A handful of leaks.

All systems saw this increase in usage and the main difference is that most systems are on monthly billing. A quarterly bill does not allow leakage issues and high use to be noticed by customers until 3-4 months later after a problem or pattern has started.

FAQs

Q: How is my bill 500+% higher than last quarter?

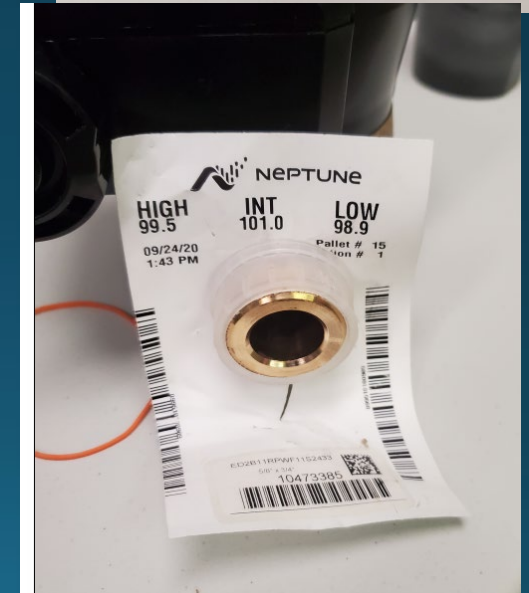
A: Most customers that KCWA spoke to, and what was repeatedly reported on the news, were comparisons between the Spring quarter and not the prior Summer quarter where customers typically show the same or elevated usage based on the climactic conditions .

142 customers that filed complaints used an equivalent amount of water ,or less, than past summers.

313 customers that filed complaints used moderate increases relative to past years and is alignment with use based on the severe drought conditions experienced this past year.

Meters

- The meter being installed are the same mechanical meters that are being removed due to age and technological limitations. The new meters store 90 days of use information and can transmit the information over the air.
- A mechanical meter with does not move unless water goes through it.
- Mechanical meters do not speed up with time. They either stop working or slow down.
- All new meters are certified factory tested to AWWA standards before they are installed. Each new meter has a test results tag attached. KCWA requested the manufacturer to release the testing information for every new meter installed in the KCWA system. KCWA will publish these results.



◀ Meter Accuracy Test

How to easily determine the accuracy of your meter

A simple test to check your meter for accuracy is with a five-gallon bucket. First, make sure no water is running and take an initial meter reading, as discussed above. Second, fill up the five-gallon bucket in your tub or anywhere that can accommodate the height of the bucket. Lastly, take a final reading from the meter and subtract it from the initial reading. Five gallons of water should equal 0.66 cubic feet.

Please note that a five-gallon bucket holds a little more than 5 gallons.

If you want to get a little more precision, you can mark out exactly five gallons in your bucket using a measuring cup. (16 cups = 1 Gallon)

Another way to get exactly 5 gallons is to use a bathroom scale.

1 gallon = 8.34 pounds, 5 gallons = 41.7 pounds plus the weight of the empty bucket so weight the bucket first then add 41.7lbs to that value.

As a valued customer, KCWA hopes that this simple test can provide a level of comfort in the accuracy of your meter. KCWA is required to ensure that meters are factory certified to the following **AWWA standards for accuracy** before installation.



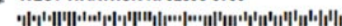
How to read your meter and check for leaks:

<https://kentcountywater.org/water-meter-reading.aspx>

WATER BILL

0000012140 000000107844 6

SAM SAMPLE
123 WEST ST.
WEST WARWICK RI 02893-5730



Bill Date	12/15/2020
Service Location	123 WEST ST WEST WARWICK RI 02893
Account Number	107844
Payment Due Date	01/15/2021
CID for Online Access	XXXX
TOTAL AMOUNT DUE	\$ 121.40

Amount enclosed \$ _____

Kent County Water Authority
PO Box 9901
Providence RI 02940-4001



Please make check/money order payable to Kent County Water Authority. Include account number on check/money order. To pay by ACH or credit card, go to www.kentcountywater.org or call 1-801-821-9300.
Please return top portion this page, retain bottom and following page for your records.

Bill To

SAM SAMPLE
123 WEST ST.
WEST WARWICK RI 02893

Service Location

123 WEST ST.
WEST WARWICK RI 02893

Service

Account Number: 107844
Service Type: Residential
Water Rate: \$5.235/HCF
Meter ID: RF number here
Meter Size: 5/8 x 3/4

Contact Us

Kent County Water Authority
1072 Main Street
PO BOX 192
WEST WARWICK, RI 02893-0192
Business Hours Mon-Fri 8:00 AM -4:00 PM
PHONE NUMBER: 401-821-9300
EMERGENCIES DIAL 401-821-9300
customerservice@kentcountywater.org
www.kentcountywater.org

IMPORTANT MESSAGES

Irrigation and/or recreational water use will increase your average daily use. Small usage amounts add up quickly.

Water Fact:
Did you know that flow of 0.1 gallon per minute equals 144 gallons per day!

No Usage Alerts During this Period

Your water meter stores 90 days of hourly usage data, if your meter displays an abnormal use pattern it will be displayed as an alert above. See page 2 for details

Bill Summary (Bill Details on Reverse Side)

Bill Date 12/15/2020
Usage Period 8/11/2020 - 10/26/20 (76 days)
Current Consumption (HCF) 19.49

Previous Bill \$ 211.98
Payment Received -\$ 211.98
Balance \$ 0.00

Current Charges *	HCF	Rate	
Consumption Charge (New Meter)	5.49	x \$ 5.235	\$ 28.48
Consumption Charge (Old Meter)	14	x \$ 5.235	\$ 73.29
Water Protection Charge	19.49	x \$ 0.219	\$ 4.27
Service Charge(s)			\$ 15.10

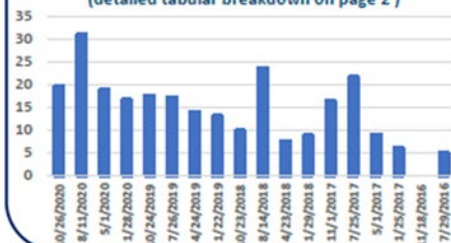
Total Current Charges \$ 121.40
Total Due \$ 121.40

*See reverse side for a detailed breakdown of charges
1 HCF = 100 cubic feet = 1 Billing Unit = 748 gallons

Average
Daily Use for
this period
ending
10/26/20
192
GALS PER
DAY

The recommended use is 65 gallons per person per day. Divide the number above by the number of people in your household to determine your daily, per person usage.

Your Water Usage History (HCF) (detailed tabular breakdown on page 2)



Address Change(s)

Name

Address

City

State

()

Phone Number

E-mail Address

Zip Code

☐ Mobile Number

Bill Date

12/15/2020

Usage Period

8/11/2020 - 10/26/20 (76 days)

Current Consumption (HCF)

19.49

AUTO BILL PAY IS HERE

Save time and money. Enroll in Auto Pay, and your bill will be paid on time, every time, directly from your bank account on the due date. No stamps required! Contact us at 401-821-9300 M-F 8AM-4PM for details on how to sign up.

Please make check/money order payable to Kent County Water Authority. Include account number on check/money order. To pay by ACH or credit card, go to www.kentcountystwater.org or call 1-401-821-9300. Please return top portion this page, retain bottom and following page for your records.

METER READING INFORMATION

Was Your Meter Changed Out During This Billing Cycle?

YES (your bill is calculated from usage on old and new meters)

METER	Serial Number	RF Number	Final Meter Reading (Cu Ft)	Previous Meter Reading (Cu Ft)	Usage (HCF)	Date
OLD METER			23866 (A)	22466 (A)	14	9/23/2020
METER	Serial Number	RF Number	Current Meter Reading (Cu Ft)	Initial Meter Reading (Cu Ft)	Usage (HCF)	Date
NEW METER			549 (A)	5 (A)	5.49	10/26/2020

UNDERSTANDING YOUR BILL

Reading Type: (A) Actual Meter Reading (E) Estimate
1 HCF = 100 cubic feet = 1 Billing Unit = 7.48 Gallons

TOTAL USAGE 19.49 (HCF)
RATE: \$5.235/HCF
USAGE CHARGES: \$102.03

Billing Unit: One billing unit equals one hundred cubic feet (HCF).

Usage Period: The total number of days of water consumption/usage between meter readings.

Consumption/Usage: The total volume of water used in the usage period. This amount is presented in units of hundred cubic feet (HCF) and is calculated by subtracting difference between previous and current meter readings in cubic feet /100.

Consumption Charge: Charge based on the amount of water used multiplied by the rate per HCF. The current water rates can be found at <https://kentcountystwater.org/rates-billing.aspx>

Meter Reading Actual (A): Means actual meter reading as collected by our meter readers and put into the billing system. The meter reading units are cubic feet or Cu Ft.

Meter Reading Estimated (E): Means KCWA was unable to obtain a meter reading at your location. Estimates are based on your historical use patterns and applied as an estimate. There may be several reasons why this has occurred. Please contact our office at 401-821-9300 so we can schedule an appointment to repair or replace your water meter to avoid future estimated readings.

Service Charges: A flat or fixed charge payable whether water is used or not, based on meter size. Covers fixed costs associated with capital and operation & maintenance costs of meters and services along with costs associated with billing and collection.

Water Quality Protection Charge (WQPC): \$ 0.219 per hundred cubic feet. Under State Law § 46-15.3-5, the water quality protection charge is a state charge that is required to be billed and collected by KCWA for the purposes of protecting the quality and safety of the public water supply. **Water Quality Protection Charge Exemption:** If you are a customer 65 years or older and own a single-family home, you are eligible for an exemption from this charge. In order to file for an exemption, you must fill out an exemption form with this office. You must provide identification or a birth certificate.

BILLING QUESTIONS

BILLING INQUIRIES: PLEASE CONTACT OUR CUSTOMER SERVICE OFFICE AT (401) 821-9300. IF YOU STILL BELIEVE YOUR BILL IS INCORRECT AFTER TALKING TO OUR SERVICE REPRESENTATIVE, YOU MAY SUBMIT THE MATTER FOR RESOLUTION TO THE DIVISION OF PUBLIC UTILITIES & CARRIERS LOCATED AT 89 JEFFERSON BLVD., WARWICK, RI, TELEPHONE NO. 780-9700.

PAYMENT PLANS: PAYMENT PLANS ARE AVAILABLE TO OUR RESIDENTIAL CUSTOMERS IF NEEDED. PLEASE CALL OUR CUSTOMER SERVICE DEPARTMENT TO INQUIRE ABOUT AVAILABILITY.

BILL PAYMENT

PAYMENT: THIS IS DUE AND PAYABLE WITHIN 30 DAYS OF BILLING DATE. ANY BILL OR PORTION THEREOF UNPAID AFTER 30 DAYS IS SUBJECT TO INTEREST AT A RATE OF 1 1/2% PER MONTH OF THE UNPAID BALANCE. IF WE TERMINATE SERVICE, THERE WILL BE A \$55.00 SHUT OFF CHARGE AND A \$45.00 REACTIVATION CHARGE.

CREDIT CARDS OR ACH: TO PAY ONLINE BY ACH OR CREDIT CARD GO TO WWW.KENTCOUNTYWATER.ORG AND CLICK "PAY YOUR BILL." THERE ARE NO CONVENIENCE FEES.

BY TELEPHONE: CALL TO PAY OVER PHONE VIA A SECURE LINE

YOUR HISTORICAL USAGE DATA

#	READ DATE	READ	HCF	TYPE	GAL	GALS /DAY
76	10/26/2020	23866	19.49	A	14579	192
102	8/11/2020	21917	30.81	A	23046	226
94	5/1/2020	18836	18.73	A	14010	149
96	1/28/2020	16963	16.44	A	12297	128
90	10/24/2019	15319	17.45	A	13053	145
93	7/26/2019	13574	17.04	A	12746	137
92	4/24/2019	11870	13.84	A	10352	113
91	1/22/2019	10486	12.88	A	9634	106
70	10/23/2018	9198	9.73	A	7278	104
113	8/14/2018	8225	28.5	A	21318	189
84	4/23/2018	5375	7.42	A	5550	66
89	1/29/2018	4633	8.63	A	6455	73
99	11/1/2017	3770	16.22	A	12133	123
85	7/25/2017	2148	21.48	A	16067	189
96	5/1/2017	0	8.88	A	6642	69
68	1/25/2017	174000	6	A	4488	66
112	11/18/2016	173400	0	A	0	0
72	7/29/2016	173400	5	A	3740	52

USAGE ALERT DEFINITIONS

Continuous Usage: Is defined for as continuous flow >0.01 cubic feet for all 96 measurement periods in a given day during at least one day in the use period.

Major Reverse Flow: Is defined for as reverse flow >0.01 cubic feet for any measurement period in a given day during at least one day in the use period. This indicates a backflow condition and KCWA requests that you please contact us to set up an appointment to review the alert in detail and determine the cause to provide to a licensed plumber.

WATER QUALITY REPORT

The 2019 Water Quality Report is now available online at: <https://kentcountystwater.org/water-quality-reports.aspx>
To receive a printed copy, please call 401-821-9300

Clerical Errors from manual processes

- There were 17 clerical errors noted during the investigation.
- Most were small amounts of usage because it was the transposing of the last couple numbers on the manual entry of final reads.
- Large discrepancies from manual entries typically result in large bills on larger meters >1 inch. KCWA creates an exception report that we manually check outliers. KCWA checks these outliers prior to sending out bills and this process typically takes a week, or two.

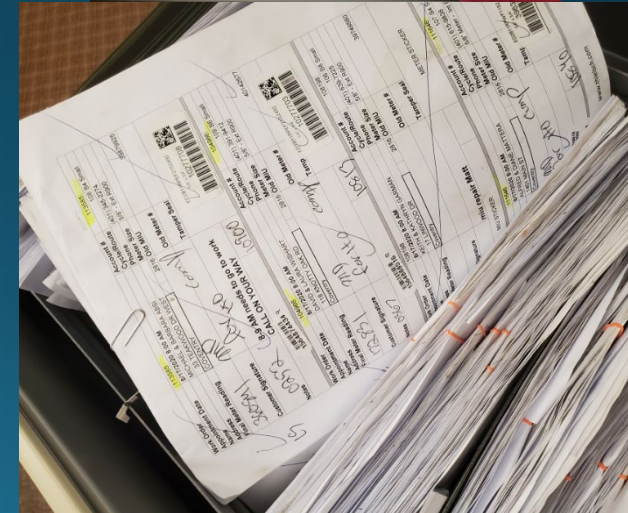
The exception report checks for:

- high consumption > 8000 cu ft
- # of dials on the register
- Multiplier
- Zero use
- No read



Clerical Errors from manual processes

- As a result of the clerical errors found during the investigation, KCWA performed a randomized audit of 500 accounts and found 6 more clerical errors. Albeit extremely small, 1-10 cu ft, which amounts to less than a dollar, but errors none-the-less.
- As a result of the random test, KCWA will check the remaining 13,000 accounts for clerical errors. It is our goal to complete these checks by the end of February.
- Additional QA/QC: All customer service representatives now checking the final reading in three places before entering the value into the system. The photo of the meter with the final read when it was removed, the handheld application software entry collected by the meter installation company, and the hand-written paperwork provided.



Conclusion

- 127 customers that were not satisfied with KCWA's filed for a deeper investigation with DPUC. Many customers went direct to the DPUC or their legislators.
- There were no systemic billing or meter issues found in the meter readings, old and new, or the old billing software. All customers were satisfied with the findings or did not respond to the investigation results. Customers that were still concerned, KCWA set up site visits to try and help customers determine the issue. Customers that still did not agree went to the DPUC. KCWA urges any customer that did not receive a response, to please contact us as soon as possible to determine the cause and get the account investigated.
- The antiquated (30 year old) Customer Information System and Utility Billing software is in the process of being replaced to better serve our customers. This will prevent the manual entry of information and the manual review of thousands accounts each month.
- The new bills will arm the customers with every piece of information available to understand their bill and any problems that may have occurred.
- KCWA is filing with the PUC to move to monthly billing as soon as possible. This requires the new meters to be installed to allow rapid remote reading. There is one cycle , Cycle B Coventry, ready for deployment slated for this summer if approved. The others cycles will follow in the following months.