## KENTUCKY-AMERICAN WATER COMPANY <br> CASE NO. 2022-00299 COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION

## Witness: Melissa Schwarzell and Roderick Sherman

1. Provide a copy of all reports prepared by Kentucky-American regarding consecutive estimated meter reads between January 2018 and the date of service of this Order.

## Response:

Please see the following attachments:

- Attachment 1: PSC "Consecutive Estimate Updates" for August 2018-December 2018
- Attachment 2: 2: Periodic (weekly, biweekly, or monthly) consecutive estimate reports between November 2019 and July 2020
- Attachment 3: Reports utilizing a recently created, real-time consecutive estimate dashboard, which became available in June 2022



## KENTUCKY

## AMERICAN WATER

## Consecutive Estimates Update:

- We are seeing progress in our efforts to manage the number of consecutive estimates; anticipating that our current action plans will lead us to see a significant reduction in estimates by the end of September.
- We are continuing to allocate additional staffing resources to perform the work deemed necessary by both the Field and Administrative Team Members to obtain accurate readings during the read cycle.

- We have continued to provide Customer education on how to protect radio read devices from damage; utilizing radio ads \& interviews, social media and connection with key community outreach partners such as Councilman, Greater Lexington Apartment Association and Homebuilders Association.


|  | Avg. \# of <br> Residential <br> Customers <br> Billed | Newly Reported <br> Consecutive <br> Estimated Readings | Re-Occurring <br> Consecutive <br> Estimates | Percentage of <br> Residential | Total Number of <br> Meters Replaced <br> Durng Period | Notes <br> (Optional) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| June | 120,000 | 770 | 2118 | 2.41 | 1376 |  |
| July | 120,000 | 939 | 1974 | 2.43 | 1089 |  |

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## KENTUCKY

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## Consecutive Estimate Update

- We are seeing significant progress in our efforts to manage the number of consecutive estimates; we still anticipate that the current action plans will lead us to see a significant reduction in estimates by the end of September.
- We are continuing to allocate additional staffing resources to perform the work deemed necessary by both the Field and Administrative Tearn Members to obtain accurate readings during the read cycle.
- We have continued to provide Customer education on how to protect radio read devices from damage; utilizing radio ads \& interviews, social media and connection with key community outreach partners such as Council Members for the City of Lexington, Greater Lexington Apartment Association and Homebuilders Association.


Based on avg, residential Customer count of 120 k

| Kentucky American Water |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Month | Avg. $\#$ of Residential Customers Billed | Newly Reported Consecutive Estimated Readings | Re-Occurring Consecutive Estimates | Percentage of Residential | Total Number of Meters Replaced Durne Period | Notes (Optional) |
| June | 120,000 | 770 | 2118 | 2.41 | 1376 |  |
| July | 120,000 | 939 | 1974 | 2.43 | 1089 |  |
| August | 120,000 | 496 | 1185 | 1.40 | 1035 |  |

## Consecutive Estimate Update

- We are continuing to see significant progress in our efforts to manage the number of consecutive estimates; our action plans have led to results even better than anticipated.
- We are continuing to allocate additional staffing resources to perform the work deemed necessary by both the Field and Administrative Team Members to obtain accurate
 readings during the read cycle.
- We have continued to provide Customer education on how to protect radio read devices from damage; utilizing radio ads \& interviews, social media and connection with key community outreach partners such as Council Members for the City of Lexington, Greater Lexington Apartment Association and Homebuilders Association.


Based on avg. residential Customer count of 120 k

| Kentucky American Water |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Month | Avg. \# of Residential Customers Billed | Newly Reported Consecutive Estimated Readings | Re-Occurring Consecutive Estimates | Percentage of Residential | Total Number of Meters Replaced Durng Period | Notes (Optional) |
| June | 120,000 | 770 | 2118 | 2.41 | 1376 |  |
| July | 120,000 | 939 | 1974 | 2.43 | 1089 |  |
| August | 120,000 | 496 | 1185 | 1.40 | 1035 |  |
| September | 120,000 | 221 | 466 | 0.57 | 1256 |  |



## KENTUCKY

## AMERICAN WATER

## Consecutive Estimate Update

- We have seen substantial improvement with our continued efforts to manage the number of consecutive estimated residential bills; our action plans have led us to manage the backlog of work in a timely manner, with better results than anticipated.
- We are committed to continuing to allocate additional staffing resources to perform the work deemed necessary by both the Field and Administrative Team Members to obtain accurate readings during the read cycle.
- We are committed to continuing to provide Customer education on how to protect radio read devices from damage; utilizing radio ads \& interviews, social media and connection with key community outreach partners.


## Consecutive Residential Estimates


\% of Consecutive Residential Estimates


Based on avg. residential Customer count of 120 k

## Kentucky American Water

| Month | Avg. \# of <br> Residential <br> Customers Billed | Newly Reported <br> Consecutive <br> Estimated <br> Readings | Re-Occurring <br> Consecutive <br> Estimates | Percentage of <br> Residential | Total Number <br> of Meters <br> Replaced <br> During Period |
| :---: | :---: | :---: | :---: | :---: | :---: |
| June | 120,000 | 770 | 2118 | 2.41 | 1376 |
| July | 120,000 | 939 | 1974 | 2.43 | 1089 |
| August | 120,000 | 496 | 1185 | 1.40 | 1035 |
| September | 120,000 | 221 | 466 | 0.57 | 1256 |
| October | 120,000 | 313 | 323 | 0.53 | 2813 |

KENTUCKY AMERICAN WATER

## Consecutive Estimate Update

- We have continued to see a reduction in the number of re-occurring consecutive estimated residential bills; this month we saw a slight increase in newly reported consecutive estimated residential bills due to the data validation process associated with the significant number of meter changes in October.
- With the slight increase in newly reported consecutive estimated residential bills we have allocated additional staffing resources, by the way of overtime, to perform the work deemed necessary by both the Field and Administrative Team Members to process the reads obtained managing the need to estimate billing.
- We are committed to continuing to provide Customer education on how to protect radio read devices from damage; utilizing radio ads \& interviews, social media and connection with key community outreach partners. Over the coming months we will be working to educate our Customers on the potential impacts of inclement weather on our ability to obtain an actual read that could lead to an estimated bill.

| Month | Avg.\# of <br> Residential <br> Customers Billed | Newly Reported <br> Consecutive <br> Estimated | Re-Occurring <br> Consecutive <br> Estimates | Percentage of <br> Residential | Total Number of <br> Meters Replaced <br> During Period |
| :---: | :---: | :---: | :---: | :---: | :---: |
| June | 120,000 | 770 | 2118 | 2.41 | 1376 |
| July | 120,000 | 939 | 1974 | 2.43 | 1089 |
| August | 120,000 | 496 | 1185 | 1.40 | 1035 |
| September | 120,000 | 221 | 466 | 0.57 | 1256 |
| October | 120,000 | 313 | 323 | 0.53 | 2813 |
| November | 120,000 | 434 | 283 | 0.60 | 1000 |



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## Here is the end of the month service order status.

## Estimation Orders



Investigation Orders








Number of Orders
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## Estimation Orders






## Planning plant ${ }^{-}$

All


| Sum of Count Column Labels - $\dagger$ |  | 3rd Consec | c 4th Consec | 5th or More |
| :---: | :---: | :---: | :---: | :---: |
| Row Labels |  |  |  |  |
| 2022-01 | 854 | 484 | 400 | 702 |
| 2022-02 | 1036 | 527 | 324 | 898 |
| 2022-03 | 641 | 352 | 206 | 860 |
| company $-7 \quad$ MA.Test $*$ <br> Sun of Count |  |  |  |  |

(MULTIPLE ITEMS)


Trends of Consecutive Estimates April 2022
Sum of Count Column Labels $\nabla^{\dagger}$


## Conpeny of MuTet -

sum ar corrt
(MULTIPLE ITEMS)


Trends of Consecutive Estimates May 2022
Sum of Count Column Labels $\quad \uparrow$


## (MULTIPLE ITEMS)



## Row Labels

MR-Implausible - 2nd Month Consecutive Estimate MR-Implausible - 3rd Month Consecutive Estimate MR-Implausible - 4th Month Consecutive Estimate 159 MR-Implausible-5th \& above Consecutive Estimate
Grand Total

210
335 ..... 1100 ..... 1100
Count of


## Row Labels

MR-Implausible - 2nd Month Consecutive Estimate
MR-Implausible - 3rd Month Consecutive Estimate 480 480

MR-Implausible - 4th Month Consecutive Estimate 96
MR-Implausible-5th \& above Consecutive Estimate 340

Grand Total


## Row Labels

MR-Implausible - 2nd Month Consecutive Estimate
MR-Implausible - 3rd Month Consecutive Estimate MR-Implausible - 4th Month Consecutive Estimate 904 382

MR-Implausible-5th \& above Consecutive Estimate116
Grand Tota ..... 1605


## Row Labels

MR-Implausible - 2nd Month Consecutive Estimate
MR-Implausible - 3rd Month Consecutive Estimate
MR-Implausible - 4th Month Consecutive Estimate 309 MR-Implausible-5th \& above Consecutive Estimate

Grand Tota

Total


## KENTUCKY-AMERICAN WATER COMPANY <br> CASE NO. 2022-00299 <br> COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION

## Witness: Melissa Schwarzell and Roderick Sherman

2. Provide a report with the following information for each month from January 2018 through August 2022:
a. Number of residential customers billed.
b. Percentage of residential customers with an estimated read.
c. Newly reported consecutive estimated readings.
d. Re-occurring consecutive estimated readings.
e. Total number of meters replaced during the month.

## Response:

a.- d. Please see Attachments 1 and 2.
e. Please see Attachment 2.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2022-00299
COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION

## Witness: Melissa Schwarzell and Roderick Sherman

3. For each estimated customer billing between January 2018 and August 2022, provide the reason for the estimated reading.

## Response:

There are several reasons that a meter reading might be estimated for a given period. These include the following:

- Failure to obtain a radio or manual read in the field.
- Causes can include, but are not limited to, the following: broken equipment (either the meter, meter interface unit ("MIU"), or reading device), obstructions to the radio signal, obstructions to the meter, and inclement weather. Failure to obtain a read in the field results in a "skip code." Please see a full list of these for January 2018-September 2022 in Attachment 1. Also, please note that the $\sim 141,000$ skip codes in the attachment relate to $\sim 7.9$ million attempted meter reads, and thus represent $\sim 18$ of every 1000 reads.
- A read is obtained in the field but is not billable.
- A nonbillable read can be due to alphanumeric codes in the data. Alphanumeric codes can arise when a meter register dial gets stuck. A full list of the associated error codes is provided in Attachment 2. Please note, the $\sim 34,000$ error codes of this nature relate to $\sim 7.9$ million attempted reads, and thus represent approximately 4 of every 1000 reads.
- A nonbillable read can also be due to disqualifying error codes in the data. These arise due to an interaction between the meter and MIU. A list of these is provided in Attachment 3. Please note, the $\sim 28,000$ error codes relate to $\sim 7.9$ million reads and thus represent 3 to 4 of every 1000 reads.

There are a few reasons total estimated bills may vary from estimated meter readings:

1) Meters can be attached to an inactive premise, and consequently there is no customer bill to be affected by an estimated read. (For example, more than 12,000 of the attached skip codes could be identified as associated with an inactive premise.)
2) A read may be received in the field that is estimated or problematic and the billing team may be able to work with the operational team to resolve the issue prior to billing.
3) A read may be received in the field and be free of error codes, but the resulting bill may be deemed implausible or outside of thresholds by the billing team. When this happens, the billing team may perform an office estimate.

## KENTUCKY-AMERICAN WATER COMPANY

CASE NO. 2022-00299
COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION

## Witness: Melissa Schwarzell and Roderick Sherman

4. For each estimated customer billing between January 2018 and August 2022 due to failure of the MIU to transmit data to the radio read receiver, or a zero usage, provide the date and time an attempt was made to manually read the meter and the reason the utility was unable to read the meter.

## Response:

Please refer to KAW's response to Question 3 which explains many of the reasons that meter reads may estimate and provides three attachments with detailed information for various skip and error codes. (As seen in the response to Question 3, failure of an MIU to transmit data is just one of several causes of estimation.) These records are date and time stamped except in select cases. (Skip codes and error codes that are older than June 21, 2018 have a date stamp, but not a time stamp due to data retention activity. Alphanumeric data in field read records also have a date but not a time stamp).

In addition to the information provided in response to Question 3, which addresses KAW's efforts to obtain periodic meter reads, KAW also follows up on consecutive estimated reads with several service order types. Please see the descriptions below and the referenced attachments.

- Repair / Install Reading Device ("RID") order types. These orders can be issued in response to certain skip codes, as a result of manual effort, or due to a second consecutive estimated monthly read. If the order was worked but failed to achieve a successful result, the reasons are tracked and dated. Please see Attachment 1.
- Stop consecutive estimate ("REO" and "REC") order types. These orders can be issued due to three or more consecutive estimated monthly reads. The orders can also be manually generated. If the order was worked but failed to achieve a successful result, the reasons are tracked. Please see Attachment 2.

KAW does make efforts to follow up on zero usage reads, even though these do not generally result in estimated bills. A "Zero Usage - See if Meter Stuck" order can be generated. If the order was worked but failed to achieve a successful result, the reason is tracked. Please see Attachment 3.

# KENTUCKY-AMERICAN WATER COMPANY <br> CASE NO. 2022-00299 <br> COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION 

## Witness: Melissa Schwarzell and Roderick Sherman

5. Describe the steps taken by Kentucky-American since January 2018 to address the issue of the MIUs not transmitting usage data.

## Response:

Failure of an MIU to transmit data is just one of several causes of estimation. Please see the Company's response to Question 6.

## KENTUCKY-AMERICAN WATER COMPANY <br> CASE NO. 2022-00299 <br> COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION

## Witness: Melissa Schwarzell, Kathryn Nash, and Roderick Sherman

6. Describe the steps taken by Kentucky-American since January 2018 to manage the number of consecutive meter estimates.

## Response:

In 2018 and 2019, the Company increased the number of employees dedicated to meter reading, meter testing, and field service work, and increased overtime hours expended in these positions. Efforts focused on replacing metering equipment and obtaining missing meter reads. (Please see Figures 1 and 2).

Figure 1


Figure 2


Some of the increased labor has been focused on meter equipment repair and installation. This has resulted in the replacement of several thousand additional meters per year since 2018, beyond what was planned. These are meters that were not originally scheduled for removal, but which were no longer performing well (see Figure 3). The Company has also taken a proactive approach in addressing recent extraordinary levels of supply chain delay in metering equipment delivery. KAW is placing orders up to six months in advance to promote availability of adequate metering infrastructure supplies in the field.

Figure 3


In addition to the renewal of metering equipment, the Company has invested in related hardware, services, and reporting technologies to support meter reading and service order management. The Company has updated laptops and vehicle hardware related to meter reading, and it has changed wireless carriers to achieve better connectivity.

The Company upgraded its reporting capabilities to improve visibility to meter changeout and consecutive estimate data. A sample of the "dashboard" reports now available for consecutive estimates is shown in Attachment 3 to Question 1, which gives KAW the ability to provide KAW President Kathryn Nash real-time reports of the number of consecutive estimates. ${ }^{1}$ Dashboards have also been developed to give supervisors greater visibility to the location of their workforce, and the orders being worked within a geographic area, to allow for more efficient reallocation of resources when needed.

KAW supervisory staff also has worked with the Field Resources Coordination Center ("FRCC"), the dispatch team that coordinates service orders, to improve the prioritization of service orders related to consecutive estimates. As a result of that work, beginning in October 2022, service orders related to consecutive estimates receive a higher priority and will be worked more quickly.

Most recently, KAW has worked to optimize its meter reading routes. (Meter reading routes are groups of meters that are scheduled to be read in a batch each month.) KAW anticipates increased efficiencies both in how long it takes to read all meters in the system and how much travel is required to read all meters in the system. It is anticipated that the more contiguous, consolidated routes will reduce transit time and allow employees to focus more on gathering difficult reads.

The number of consecutive estimates is a lagging indicator of challenges in the meter reading process, and KAW has undertaken significant efforts since 2018 to reduce the number of consecutive estimates (see Figure 4). There has been a recent upward trend in these, however, and the KAW will continue to dedicate additional labor resources to obtaining meter reads and leverage the improved reporting, technology, process improvement,s and increased equipment renewal to further reduce the number of consecutive estimates.

[^1]Figure 4


In addition, KAW continues to evaluate planned metering equipment replacements to ensure replacement schedules align with an appropriate length of service for meters by size, given experience with the equipment in service. KAW's recent experience is that the current vintage of installed meters is lasting approximately 10 years. Approximately 80,000 of the Company's 133,000 installed $5 / 8$ " meters (the most common residential size) are imminently approaching, or have surpassed, 10 years of age. This means that a significant number of KAW's existing meters would benefit from replacement over the next 2-3 years.

# KENTUCKY-AMERICAN WATER COMPANY <br> CASE NO. 2022-00299 <br> COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION 

## Witness: Melissa Schwarzell and Roderick Sherman

7. Describe the steps taken by Kentucky-American since January 2018 to obtain accurate meter readings when usage data was not transmitted to Kentucky-American radio receivers during the meter reading process.

## Response:

Failure of an MIU to transmit data is just one of several causes of estimation. Please see KAW's response to Question 6.

# KENTUCKY-AMERICAN WATER COMPANY <br> CASE NO. 2022-00299 <br> COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION 

## Witness: Melissa Schwarzell and Roderick Sherman

8. How many employee positions were dedicated to meter maintenance each month between January 2018 and August 2022 to mitigate the issue of MIU failure to transmit usage data to radio receivers. Describe in specific detail the responsibilities of each position.

## Response:

Employees whose jobs are most often focused on meter maintenance include Meter Readers, Field Service Representatives, and Meter Technicians. The count of employees hired in those roles at the end of each month from January 2018 - August 2022 are as follows:

|  |  | Months |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Years | Position | Jan | Feb | Mar | Apr |  |  | Jul | Aug | Sep |  | Nov Dec |  |
| $\square 2018$ | Field Services Representative | 13 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
|  | Meter Reader | 6 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 7 |
|  | Meter Technician | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2018 Total |  | 20 | 22 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 23 |
| $\bullet 2019$ | Field Services Representative | 15 | 15 | 15 | 18 | 17 | 17 | 17 | 18 | 18 | 18 | 16 | 16 |
|  | Meter Reader | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 5 | 6 | 6 |
|  | Meter Technician | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| 2019 Total |  | 21 | 21 | 21 | 24 | 23 | 23 | 23 | 23 | 25 | 24 | 23 | 23 |
| - 2020 | Field Services Representative | 15 | 16 | 16 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 |
|  | Meter Reader | 6 | 7 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 |
|  | Meter Technician | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 2020 Total |  | 23 | 24 | 24 | 26 | 26 | 26 | 26 | 27 | 27 | 27 | 27 | 27 |
| $\square 2021$ | Field Services Representative | 18 | 15 | 16 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 16 |
|  | Meter Reader | 6 | 6 | 5 | 5 | 5 | 5 | 6 | 6 | 5 | 5 | 6 | 6 |
|  | Meter Technician | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 2021 Total |  | 26 | 23 | 23 | 22 | 22 | 22 | 24 | 24 | 23 | 23 | 24 | 24 |
| $\square 2022$ | Field Services Representative | 16 | 16 | 16 | 16 | 15 | 15 |  | 16 |  |  |  |  |
|  | Meter Reader | 6 | 6 | 6 | 6 | 6 | 6 |  | 6 |  |  |  |  |
|  | Meter Technician | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |  |  |  |  |
| 2022 Total |  | 24 | 24 | 24 | 24 | 23 | 23 | 23 | 24 |  |  |  |  |

The responsibilities of these positions are described below:

- Field Services Representative. "FSR" performs customer service appointments, meter installation, meter removal, and initiates and discontinues service to customers. They perform work required for minor maintenance of meters and meter settings. They communicate with customers and other employees to satisfy customer requests and inquiries. They inspect customers' facilities and obtain and record data. They perform work in connection with the billing and collecting of
customer accounts. They observe and report any abnormal conditions such as unbilled accounts, dangerous meter tops, theft of service, etc. They utilize the computer and mobile application software.
- Meter Reader. A Meter Reader is responsible for accurately reading and recording customer meter readings. They obtain and record meter readings and data necessary for the billing of customer accounts. They utilize computerized hardware and software deemed necessary for customer billing. They communicate with customers and other employees to satisfy customer requests and inquiries.
- Meter Technician. A Meter Technician is responsible for repairing and testing meters. They compile and record work data. They report to their supervisor various requirements for processing adequate inventory of meters and associated material.


## KENTUCKY-AMERICAN WATER COMPANY <br> CASE NO. 2022-00299 <br> COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION

## Witness: Melissa Schwarzell, Kathryn Nash, and Roderick Sherman

9. Provide a report with the number of service orders originated to investigate the failure of MIUs to transmit usage to radio receivers on a monthly basis between January 2018 and August 2022.
a. Provide the number of service orders for which the work was completed.
b. Provide the number of service orders that expired before the work was completed.

## Response:

When KAW observes consecutive estimates (for any of the reasons identified in response to Question 3), one of three types of service orders is generally created. These include Repair / Install Reading Device orders ("RID"), Stop Consecutive Estimate Outside orders ("REO"), and Stop Consecutive Estimate Inside orders ("REC"). Please see Attachment 1 which provides a breakout by month from January 2018-August 2022 for RIDs, REOs, and RECs that were created, completed, or expired.

Per KAW's response to Question 6, the Company has undertaken significant efforts (including improved reporting, technology, process improvements and increased equipment renewal) to address and reduce consecutive estimated reads and increase service order completion.

## Kentucky American Water

Service Orders Associated with Consecutive Estimates
REO, RCE, and RID orders, January 2018-September 2022

|  | 2018 |  |  |  |
| :--- | ---: | ---: | ---: | ---: |
| Month | Created | Worked and <br> Completed | Worked but <br> Incompleted | Expired |
| Jan | 3,530 | 422 | 30 | 3,068 |
| Feb | 4,676 | 561 | 30 | 4,066 |
| Mar | 4,453 | 1,065 | 45 | 3,267 |
| Apr | 3,497 | 760 | 35 | 2,579 |
| May | 2,845 | 878 | 22 | 1,053 |
| Jun | 3,143 | 419 | 30 | 2,561 |
| Jul | 2,787 | 1,194 | 47 | 1,526 |
| Aug | 2,571 | 1,599 | 84 | 878 |
| Sep | 1,708 | 702 | 32 | 962 |
| Oct | 1,333 | 539 | 28 | 747 |
| Nov | 1,081 | 152 | 14 | 902 |
| Dec | 2,369 | 392 | 17 | 1,944 |
| Total | 33,993 | 8,683 | 414 | 23,553 |


| Created | Worked and <br> Completed | Worked but <br> Incompleted | Expired |
| ---: | ---: | ---: | ---: |
| 2,691 | 597 | 23 | 2,048 |
| 2,635 | 402 | 31 | 2,184 |
| 3,000 | 637 | 42 | 2,297 |
| 3,294 | 563 | 37 | 2,680 |
| 3,625 | 588 | 31 | 2,988 |
| 3,317 | 567 | 75 | 1,881 |
| 1,528 | 305 | 49 | 59 |
| 593 | 306 | 39 | 240 |
| 523 | 182 | 38 | 170 |
| 719 | 288 | 24 | 300 |
| 650 | 294 | 33 | 317 |
| 783 | 276 | 40 | 466 |
| 23,358 | 5,005 | 462 | 15,630 |


| Created | Worked and <br> Completed | Worked but <br> Incomplete | Expired |
| ---: | ---: | ---: | ---: |
| 966 | 379 | 34 | 549 |
| 695 | 438 | 24 | 223 |
| 737 | 588 | 51 | 50 |
| 748 | 459 | 37 | 25 |
| 599 | 485 | 58 | 51 |
| 658 | 539 | 84 | 34 |
| 893 | 753 | 84 | 53 |
| 924 | 768 | 91 | 62 |
| 837 | 665 | 62 | 103 |
| 513 | 427 | 42 | 39 |
| 438 | 371 | 35 | 32 |
| 466 | 363 | 53 | 48 |
| 8,474 | 6,235 | 655 | 1,269 |


| Month | 2021 |  |  |  | 2022 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Created | Worked and Completed | Worked but Incomplete | Expired | Created | Worked and Completed | Worked but Incomplete | Expired |
| Jan | 493 | 199 | 28 | 263 | 2,584 | 393 | 30 | 2,119 |
| Feb | 595 | 192 | 21 | 380 | 1,953 | 390 | 35 | 1,475 |
| Mar | 969 | 248 | 19 | 698 | 1,292 | 315 | 29 | 939 |
| Apr | 860 | 426 | 22 | 407 | 1,503 | 441 | 60 | 981 |
| May | 822 | 209 | 25 | 584 | 988 | 265 | 47 | 641 |
| Jun | 789 | 247 | 12 | 525 | 1,209 | 221 | 26 | 944 |
| Jul | 798 | 172 | 15 | 608 | 859 | 210 | 30 | 568 |
| Aug | 1,063 | 298 | 36 | 721 | 1,082 | 673 | 21 | 351 |
| Sep | 1,027 | 148 | 25 | 843 | 1,004 | 484 | 26 | 494 |
| Oct | 1,464 | 162 | 20 | 1,269 |  |  |  |  |
| Nov | 1,802 | 128 | 10 | 1,653 |  |  |  |  |
| Dec | 1,967 | 235 | 31 | 1,680 |  |  |  |  |
| Total | 12,649 | 2,664 | 264 | 9,631 | 12,474 | 3,392 | 304 | 8,512 |


[^0]:    Based on avg. residential Customer count of 120 k

[^1]:    ${ }^{1}$ To the extent the Commission desires it, KAW will provide the Commission periodic reports regarding estimated reads during 2023 that could include: (1) the number of first-time estimates system wide; (2) the number of recurring estimates system wide; and (3) the number of meter change outs each month.

