Irish Water

Leakage Reduction Programme

First Fix Leak Repair Scheme

For Domestic Water Customers

Quarterly Report

Q2 2020

1. Introduction to the Leakage Reduction Programme[1]

Water is one of our most valuable resources. Clean potable water is expensive to produce and distribute and one of Irish Water's key priorities is to reduce the level of water wasted through leakage. Irish Water produces approximately 1.7 billion litres of treated water every day. In 2019, some 556 million litres per day were utilised by domestic households, 395 million litres per day were utilised by non-domestic customers with approximately 712 million litres per day reported as unaccounted for water (UFW)[2]. To date, IW has reported on UFW which represents the difference between "net production" (the volume of water delivered into IW's network) and "consumption" (the volume of water that can be accounted for by legitimate consumption, metered or not). The difference includes water losses due to leaks.

In order to calculate UFW, IW subtracts the following factors of consumption from net production or distribution input (DI) to IW's water network:

- Water Delivered to Customers: an estimate of the water demanded by domestic and non-domestic customers; includes measured and unmeasured demand, water lost to leaks on the customer's property, under registration of water use due to treatment, old or broken meters and water used on IW sites and treatment plants (water taken legally);

- Distribution system operational use: IW's estimate (1% of DI) of water it uses on the distribution system, for example to clean and flush water mains; and

- Water taken legally unbilled: estimate of water used by fire services, water treatment plants, operational use and other unbilled use.

IW categorises the remainder of the water put into the distribution network as UFW[3], which is an indication of the amount of water lost to leaks on IW's public network. As highlighted above, under the current UFW calculation, water lost to leaks on the customer's property is included in the 'accounted for water' category. To enable robust, consistent reporting on Leakage, IW has implemented a new National Leakage Management System (LMS) which is estimated will enable IW to report on national leakage from 2021.

Irish Water is progressing the National Leakage Reduction Programme, LRP, which targets resources at areas of highest leakage and lowest headroom across water networks. As part of our Investment Plan 2020 to 2024, we plan to spend circa €400m on Leakage Reduction Programmes. We also plan to spend circa €37m on the First Fix Scheme from 2020 to 2024.

The overall aim of these works is to reduce leakage on a national scale to economically sustainable levels, leading to improved water network performance and reliability. The Leakage Reduction Programme and associated works will ensure a clean, safe and reliable public water supply now and into the future to support our growing population and economy.

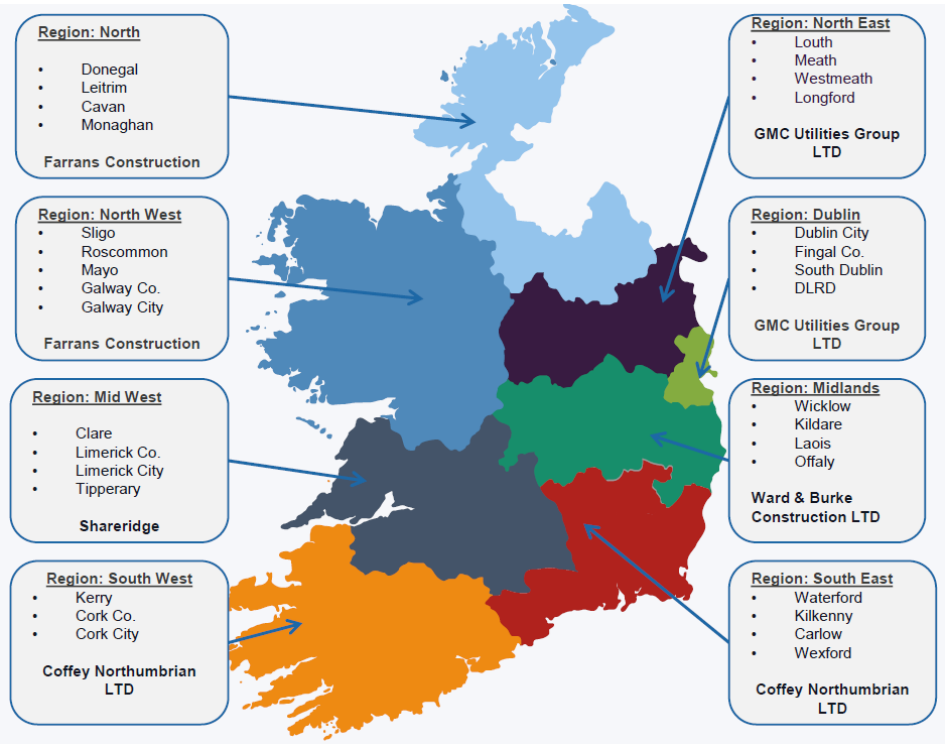
For this programme, Irish Water has sub-divided the country into eight regions and is working in partnership with local authorities and regional contractors to plan and complete activities. Details of the Leakage

[1] Following the completion of the Metering Programme in Q1 2017, the First Fix Leak Repair scheme moved to become part of the wider national Leakage Reduction Programme.

[2] See section 14.2.1 of the CRU's Energy and Water Monitoring Report for 2019 here

[3] Real water losses (loss of water on the distribution due to network leakage), water used by Irish Water to flush mains and apparent losses (unauthorised water use, e.g. illegal use of standpipes and under-recorded customer use because of incomplete data).

Reduction Programme regions and contractors can be seen below.



The scope of the works included in the Leakage Reduction Programme (LRP) includes undertaking improvements under the following seven principal work streams;

1. **DMA (District Metering Area) Establishment**

This involves the identification of groups of premises and the installation of a district meter to monitor water usage. This identifies works needed within the DMA to ensure efficient operations.

2. **Find & Fix**

The Find & Fix scheme involves leak detection crews undertaking surveys using sounding equipment to locate leaks on pavements and other public areas. If a public side leak is identified, Irish Water will carry out the necessary repairs.

3. **First Fix Free**

The First Fix Free scheme offers free leak investigations and free repairs for qualifying properties where a constant flow of water is found on the external water supply pipe. Irish Water estimates that over 157 million litres of water per day have been saved as a result of this scheme to the end of Q2 2020 including, 1.09 million litres per day saved in Q2 2020. Further information on the First Fix Free scheme can be found at https://www.water.ie/water-supply/first-fix/.

4. **Mains Renewal including Shared & Backyard Services**

Water mains renewal works usually include the replacement or renewal of ageing public water mains to improve water quality and supply. As our water pipes are underground, we need to dig down to inspect the pipes and carry out any necessary repairs or replacements.

A shared service connection means that two or more properties are fed by a single water pipe. These connections pipes are often made of iron or lead and prone to leaks.

In some older properties water connections may be installed to the back of the property and run through customer's back gardens. These connections are prone to leaks and can cause reduced levels of service and poor water pressure.

5. Lead Services

Lead in drinking water is a recognised health concern. We will be investigating the pipes that connect individual properties to the public water mains and replacing any lead pipes with new plastic pipes.

6. Non-Domestic Metering

Irish Water is replacing old non-domestic meters installed by the Local Authorities with new meters that have Automatic Meter Reading technology. The new meters allow for more accurate and timely billing for customers and better identification of leakage on non-domestic customer sites.

7. Pressure Management

Pressure management works are required to improve the quality and security of water supply to customers. The aim of these works is to reduce leakage within the mains network and to ensure a consistent supply of water to all customers. Too much pressure in the network can result in burst pipes and leakage. This can then result in a low water supply pressure for customers at the tap.

2. Overview of First Fix Free Scheme

In May 2014 the Government announced funding of €51m for a scheme to address water leakage on pipework within customer properties under a "First Fix" scheme[4]. Following a public consultation in August 2015 the Commission for Regulation of Utilities (CRU) approved Irish Water's proposed First Fix Leak Repair Scheme. The First Fix Leak Repair scheme was mobilised under the national Domestic Metering Programme. In its RC3 determination[5] the CRU outlines its ongoing support for the First Fix Leak Repair scheme.

Under the First Fix Leak Repair scheme, Irish Water assists customers by notifying them where suspected leakage is occurring within the boundary of their property. Leaks which are identified on the external supply pipe serving a property are offered a free leak repair. The First Fix Leak Repair scheme does not apply to leaks within a dwelling.

Utilising meter read data to identify the most significant leaks has proven key to operating the First Fix Leak Repair scheme efficiently. Prior to the introduction of the First Fix Leak Repair scheme, leakage programmes had been based around time-consuming and labour-intensive sampling of areas in order to seek to detect anomalies on pipework. The Irish Water domestic metering programme has provided both the platform and the technology-based solution to address this challenge. Data obtained from meter reading information

[4] As outlined in section 8 of this report, IW is currently working within this original revenue allowance.

[5] Published on 5 December 2019 and available at www.cru.ie

highlights unusual water usage patterns and allows Irish Water to isolate the source of leaks to a particular property, thereby reducing the time required for leak investigation.

Given the need to prioritise water conservation, Irish Water prioritises repairs under the First Fix Leak Repair scheme by size, based on the volume of water lost. A constant flow of water, (that is 6 litres per hour over a 48-hour period), will trigger a constant flow alarm (CFA) on the meter, indicating a potential leak. The largest leaks wasting the most water are priorities to be fixed first.

By Q2 2020, it is estimated that over 157 million litres of water per day has been saved as a result of First Fix repairs.

3. How to avail of the scheme

Customers can avail of the scheme, once they are aware of a leak on their property. The CFA alarm is triggered where a constant flow of water to the property is identified (6 litres per hour over a 48-hour period). When a CFA alarm is recorded, customers are issued with a letter from Irish Water, indicating a potential leak on their property.

Customers with a visible leak on their property can also contact Irish Water to avail of a free leak investigation.

Eligibility criteria and the process for availing of the scheme are outlined on the Irish Water website[6].

4. Initiatives to increase Customer Engagement Levels

Following the completion of the First Fix Scheme under the Metering Programme in February 2017, Irish Water analysed engagement levels in order to establish initiatives to improve the First Fix process and increase productivity.

The First Fix scheme is relying on the following in order to achieve water reduction:

- The First Fix letter reaching its desired destination to inform the customer of the possible leak;
- The customer engaging with Irish Water in order to arrange a leak investigation, and
- The customer returning the signed waiver allowing Irish Water to repair the leak on their property.

The following initiatives have been implemented:

First Fix Letter

In order to increase performance of the scheme, Irish Water pursued the following initiatives:

- In Quarter 2 2020, Irish Water sent 3,640 First Fix letters to properties with a constant flow alarm (CFA) (for comparison 3,400 CFA letters were issued in Q1 2020). Letters were issued to properties with a constant flow alarm plus usage **in excess of 1,000 litres per day**. Targeting customers above

[6] See here.

this level for the First Fix scheme is an attempt to engage customers in properties that are using over twice the national average usage. (342 litres per property per day, as calculated by the CRU (CRU/17/339)).

- The average daily usage of the property and the expected daily usage of 129 litres[7] per person per day were included on the notification letter. This informs the customer of the quantity of excess usage at their property and will encourage the customer to engage with us in order to arrange a leak investigation.
- In order to improve customer engagement, IW improved the information it provided customers on the CFA notification letters (for example, by equating the amount of litres used at the premise to the equivalent average usage by a person). During Q2 2020 notification letters were sent to properties newly appearing on the CFA list.

Waiver Return Process

Under the metering programme, waivers were posted to customers that qualified for a leak repair following the investigation. The customer was required to sign the waiver and post it back to Irish Water. It was found that there was a delay in customers returning the waivers and in some cases the waiver was not returned.

Under the leakage reduction programme this process has been amended to increase the return of the signed waivers:

- Upon completion of the Leak Investigation, the crew issue the waiver to the customer and answer any questions the customer may have. If the customer is willing to sign the waiver at the time, the crew will return the signed waiver to Irish Water and a repair can be scheduled. They will also leave a copy of the waiver with the customer for their own reference.
- If the customer is not willing to sign the waiver at this time, the crew will issue the waiver and a pre-paid envelope to the customer in the hope the customer will sign the waiver and post it back to Irish Water.

Irish Water is also encouraging our contractors to be pro-active and contact customers that have received a first fix letter but have not engaged with the scheme.

5. First Fix Update

Due to the scheduled issuing of Household Water Conservation (HWC) scheme notification letters (in Q3 and Q4 2019) IW decided to pause, pending review, issuing CFA notification letters. This decision was taken to avoid potential customer confusion caused by receipt of multiple correspondences over a short period of

[7] https://www.water.ie/news/

time. We did, however, continue with 'cold calling' activities in Q3 2019 to aid engagement in the First Fix scheme and CFA notification letters began issuing again in Q1 2020.

In Q2 2020, a significant amount of large leaks, identified as properties with usage in excess of 1,000 litres per day, appeared on the CFA list. When contacting customers, IW start with the largest users (properties with usage in excess of 5,000 litres per day). It was found that 2,226 properties were using more than 5,000 litres per day based on meter readings and were accountable for over 24 million litres of Unaccounted for Water per day (49%).

Targeting these users first will result in greater savings from fewer repairs and reduce the UFW more effectively. The remaining 17,390 properties using less than 5,000 litres per day but greater than 1,000 litres per day accounted for over 25 million litres of Unaccounted for Water per day (51%). The following table is calculated using information from the CFA list and figures calculated by the CRU (CRU/17/339) suggesting an average household consumes 342 litres of water per day.

Item	QTY of Leaks	Average usage (Litres))	Total Usage (Litres)	Expected Usage (Litres)	UFW (Litres)	% of UFW
>5 000 Litres	2,226	11,235	25,009,320	761,292	24,248,028	49%
1,000 - 5 000 Litres	17,390	1,807	31,416,380	5,947,380	25,469,000	51%
Total	19,616	2,877	56,425,700	6,708,672	49,717,028	100%

Table 1: Unaccounted for Water (UFW) summary Q2 2020

6. Reporting on the scheme

In April 2015, the CRU consulted on Irish Water's proposed First Fix Leak Repair Scheme for Domestic Water Customers and received eight responses. The CRU's decision on the policy, issued on 5 August 2015, was based on a review of the eight submissions received during the consultation period. Among its recommendations, the CRU expects Irish Water to strongly promote the scheme in order to increase customer awareness of the scheme and to encourage customers to engage with Irish Water on the scheme.

The CRU is monitoring the ongoing implementation of the scheme to ensure that the costs allowed are efficiently incurred and that benefits are achieved for customers. In line with the CRU Decision CER/15/178, Irish Water currently reports on a quarterly[8] basis on the progress of the First Fix Leak Repair scheme, the following section outlines the progress of the scheme to the end of Q2 2020.

[8] From Q3 2020 IW will report twice-yearly on the First Fix Leak Repair Scheme rather than quarterly.

7. Quarterly Summary

First Fix Scheme operations, including leak investigations and repairs, were significantly impacted by Covid-19 restrictions during Q2 2020 and this is reflected in the figures reported in this section.

- **Customer Response Rates and Engagement Levels**

A total of 909 customers have engaged with the scheme in Q2 2020. This number is made up of the following;

897 Customers requesting a free leak investigation survey

12 Customer repairs completed from data collected from the meter

- **Leak Investigations**

A total of 897 investigations were requested, which include repeat visits where customers installed an Internal Stop Valve (ISV) after an initial leak investigation visit.

Irish Water contacts customers within 10 business days to arrange a convenient time for an appointment to carry out the free leak investigation at a property. A total of 789 leak investigations were undertaken in Q2 2020. This figure includes some investigations that were requested in Q1 2020; similarly, some investigations requested in Q2 2020 will be carried out in Q3 2020.

From the 789 completed leak investigations, 274 leaks on external supply pipes were identified as qualifying. Irish Water has offered these customers with leaks on their external supply pipe a free leak repair under the scheme. The remaining 515 non-qualifying leaks are broken down as follows:

1) A total of 13 properties surveyed did not have an operational Internal Stop Valve (ISV) and the survey could not be progressed or required a further point of entry dig to establish the leak location. In many of these cases, the ISV was present but not operational. Customers are advised of the need to have a working ISV installed in order for the leak investigation to be completed.
2) In addition, a total of 21 properties have been identified through the First Fix process where the property does not qualify or the survey could not progress as it is served through a shared or backyard service.
3) The investigations identified 206 internal plumbing and other issues, which come under the remit of the home owner. As with all internal repair and maintenance in a customer's home, if a leak is confirmed internal to the house then it should be repaired by the homeowner.
4) The remaining 275 properties were identified as having leaks either on the public side, inaccessible leaks or otherwise out of the scope of the First Fix for Free Scheme.

- **Leak Repairs**

Customers are asked to review the terms and conditions of the leak repair offer and sign the offer documentation after which Irish Water will contact the customer to schedule the leak repair at a suitable time. On receipt of the documentation, Irish Water contacts customers within 10 working days to arrange a convenient time for an appointment to carry out the free leak repair at a property.

During Q2 2020 Irish Water completed 300 free leak repairs under the First Fix Leak Repair scheme. This figure includes some leaks that were detected in Q1 2020 and repaired in Q2 2020; similarly, some leaks detected in Q2 2020 will be repaired in Q3 2020.

- **Customer Repairs**

From the data collected through meter reading we know that 12 customers have repaired leaks on their property themselves after receiving a constant flow advice letter. Irish Water would like to thank all customers who repaired leaks on their property. These repairs have made a significant contribution to national water conservation.

- **Gross Water Savings**

All references below to water savings are gross. The issuance of constant flow advice letters has targeted the largest leaks first and the result of this can be seen from the estimated incremental savings of 0.99 million litres of water per day achieved in Q2 2020 from contractor repairs and a further 0.1 million litres from customer repairs.

2018	Irish Water First Fix Repair		Customer Repairs		2018 Total: Q1-Q4	
Quarter	Repairs #	Savings (ML/Day)	Repairs #	Savings (ML/Day)	Total Repairs	Total Savings (ML/Day)
1	671	3.61	858	2.36	1,529	5.97
2	982	4.40	1,128	2.91	2,110	7.31
3	1,222	5.14	525	0.84	1,747	5.98
4	1,290	3.11	626	0.74	1,916	3.85
2019					2019 Total: Q1-Q4	
1	1,428	4.21	659	1.83	2,087	6.04
2	1,391	3.46	593	2.00	1,984	5.46
3	917	1.85	198	0.91	1,115	2.76
4	475	1.45	103	0.5	578	1.95
2020					2020 Total: Q1-Q2	
1	652	1.02	147	0.6	799	1.62
2	**300**	**0.99**	**12**	**0.1**	**312**	**1.09**
Total	**9,328**	**29.24**	**4,849**	**12.79**	**14,117**	**42.03**

Table 2: Estimated water savings from the First Fix Scheme and Customer Repairs for Q1-Q4 2018, Q1-Q4 2019 and Q1-Q2 2020.

By Q2 2020, total cumulative water savings are estimated at 157.62 ML per day. A cumulative estimated total of 82.70 million litres per day has been saved through First Fix repairs and a further estimated 74.92 million litres per day saved from customer repairs. Savings are calculated from a comparison of meter data collected prior to and after the repair work being undertaken. For customer repairs, the constant flow alert is no longer active, and the meter data shows a supporting drop in water usage over the next two read periods. Finally, we exclude those with less than 1000l/d as it is suspected that below this level usage has been reduced rather than an actual customer leak repair.

8. Project Expenditure

The project expenditure is reported quarterly in arrears. The cumulative total expenditure up to the end of Q2 2020 (end of June 2020) is €47,102,765 consisting of €24,297,775 for leak investigations, €18,491,277 for

repairs and €4,313,712 for additional costs. Note, some costs incurred in a quarter may not be captured until the following quarter's figures.

9. Next Steps

Irish Water will continue to implement the First Fix Leak Repair scheme through the LRP. As per the "*First Fix Scheme Policy Decision – April 2021"* Irish Water will transition to reporting on the programme twice a year. The next report will be issued in Q3 2021 and will cover the second half of 2020, both Q3 and Q4.

Table 3: Project Summary

1	Number of Continuous Flow Alarms Detected	**Total**	**Q2 2020**	
			68,011	
2	Number of Customer Notifications Issued	**Period**	**Q2 2020**	**Cumulative FF Scheme Total**
		Region		
		North	185	**181,822**
		North West	419	
		South East	457	
		South West	628	
		Dublin	565	
		North East	483	
		Midlands	374	
		Midwest	529	
		Grand Total	3640	
	3,640 constant flow advice letters were issued in Q2 2020.			
3	Customer Responses requesting a Free Leak Investigation	**Period**	**Q2 2020**	**Cumulative FF Scheme Total**
		Region		
		North	45	**95,347**
		North West	34	
		South East	80	
		South West	202	
		Dublin	143	
		North East	76	
		Midlands	124	
		Midwest	193	
		Grand Total	897	
	897 customers requested a First Fix Free Leak Investigation			
4	Leak Investigations Completed	**Period**	**Q2 2020**	**Cumulative FF Scheme Total**
		Region		
		North	19	**90,233**
		North West	79	
		South East	83	
		South West	135	
		Dublin	22	
		North East	98	
		Midlands	124	
		Midwest	229	
		Grand Total	789	
	789 Leak Investigations were carried out in Q2 by LRP contractors.			

4a	Leak Repairs Created	**Period** / **Region**	**Q2 2020**	**Cumulative FF Scheme Total**
		North	17	**22,355**
		North West	45	
		South East	51	
		South West	88	
		Dublin	54	
		North East	25	
		Midlands	53	
		Midwest	72	
		Grand Total	405	
	405 Leak Repairs were created in Q2 2020			
5	Leak Repairs Completed	**Period** / **Region**	**Q2 2020**	**Cumulative FF Scheme Total**
		North	29	**18,146**
		North West	36	
		South East	18	
		South West	60	
		Dublin	71	
		North East	19	
		Midlands	39	
		Midwest	28	
		Grand Total	300	
	300 confirmed Leak Repairs carried out in Q2			
6	Estimated Water Savings from First Fix Repairs (Litres/day)	**Period** / **Region**	**Q2 2020**	**Cumulative FF Scheme Total**
		North	1,836.00	**82.70 ML**
		North West	90,509.00	
		South East	26,943.00	
		South West	158,427.00	
		Dublin	377,627.00	
		North East	141,815.00	
		Midlands	151,936.00	
		Midwest	36,840.00	
		Grand Total	985,933.00	
	It is estimated that 0.99 ML per day of water was saved in Q2 as a result of repairs carried out by the contractor. This brings the total incremental Water Savings to 82.70 ML from contractor repairs and an overall saving of 157.62 ML per day.			

7	Customer Repairs Completed	**Period** / **Region**	**Q2 2020**	**Cumulative FF Scheme Total**
		North	0	**43,480**
		North West	0	
		South East	0	
		South West	0	
		Dublin	7	
		North East	3	
		Midlands	2	
		Midwest	0	
		Grand Total	12	
	Customer repairs represent the repairs carried out by the customer after receiving a First Fix Free letter from Irish Water. 12 customers repaired leaks in Q2.			
8	Estimated Savings from Customer Repairs (Litres/day)	**Period** / **Region**	**Q2 2020**	**Cumulative FF Scheme Total**
		North	0.00	**74.92**
		North West	0.00	
		South East	0.00	
		South West	0.00	
		Dublin	24,102.00	
		North East	36,431.00	
		Midlands	39,188.00	
		Midwest	0.00	
		Grand Total	99,721.00	
	It is estimated that 0.1 ML of water per day was saved in Q2 as a result of Repairs carried out by the customer. This brings the total cumulative Water Savings to 74.92 ML from customer repairs and an overall saving of 157.62 ML per day.			
9	Known Properties Without an Operational ISV	**Period** / **Region**	**Q2 2020**	**Cumulative FF Scheme Total**
		North	1	**13,876**
		North West	4	
		South East	0	
		South West	0	
		Dublin	3	
		North East	4	
		Midlands	0	
		Midwest	1	
		Grand Total	13	
	A total of 13 properties did not have an Internal Stop Valve and the Leak Investigation could not be progressed.			

10	Number of Non-Qualifying Properties Served Through a Shared or Backyard Pipe	**Total**	**Q2 2020**	**Cumulative FF Scheme Total**
			21	**1,851**
	21 properties were identified as not qualifying for the scheme as they are served through a shared supply or backyard supply.			
11	Counties in Each Region	**North**	Donegal, Cavan, Monaghan, Leitrim	
		North West	Galway, Galway City, Mayo, Sligo, Roscommon	
		South East	Carlow, Waterford, Waterford City, Kilkenny, Wexford	
		South West	Cork, Cork City, Kerry	
		Dublin	Dublin City, South Dublin, Dun Laoghaire Rathdown, Fingal	
		North East	Longford, Louth, Meath, Westmeath	
		Midlands	Kildare, Offaly, Laois, Wicklow	
		Midwest	Limerick, Clare, Tipperary	

Note: All cumulative totals outlined in table 3 are for the First Fix Scheme from commencement to the end of Q2 2020.

Note: Meter read data is used to confirm that a customer repair has been carried out. Number of customer repairs and estimated savings will be included in the report once two confirmed meter readings are collected after the repair date. As such, the number of customer repairs noted above for each quarter is expected to increase in the next report as more confirmed readings are collected.