

Environment Committee – 19 January 2017**Transcript of Item 7 – Water Mains**

Leonie Cooper AM (Chair): Moving on to our second set of guests, could I thank Feryal [Demirci] for agreeing to stay for the whole of the meeting to answer a completely different set of points and questions from our previous discussion. Thank you very much also to Councillor Richard Greening, who is Chair of the Policy and Performance Scrutiny Committee of Islington Council. Feryal, as previously mentioned, is a Hackney Councillor. Islington and Hackney have had flooding issues recently and I am sure you will be drawing on the issues as they have come out in your two boroughs.

I would also like to thank Richard Aylard, who is the Director of External Affairs and Sustainability joining us from Thames Water. Finally, we also are joined by Danny Leamon, who is the Head of Water Networks at Thames Water.

We have a number of areas, as you can imagine. It is not just the London Boroughs of Islington and Hackney where we have had recent bursts. We have had quite a number of bursts all over London. We have also had the most appalling situation that engulfed Garratt Lane and Earlsfield Road, where there was simply so much water that the trunk and mains could not carry it and people's houses were flooded with sewage. This has been happening repeatedly since 2007 and so there are a lot of very unhappy people who live just near there.

However, if we just start with an open question to Thames Water, could you please briefly describe the most significant recent cases of water flooding in London and what their impact has been locally?

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): We have had a series of devastating bursts in short succession, which have had an acute impact on our customers in the vicinity of the bursts. When we have a burst like this, there are generally three impacts in varying proportions. One of course is to the properties, which are flooded. The second is disruption to the general area while we sort out that problem both immediately and in the aftermath and that can be very widespread, particularly if the burst has been on a red route or very close to people's houses. The third, which in this case has been less of a problem, is that we very often have customers off water for a period of time while we get things sorted out and reconnected. In these particular cases, most of the time that was not such a problem. The real problem has been that these have been devastating bursts for customers and our emphasis has been on dealing with that.

I would like to try distinguishing between the bursts we have had in these instances, which are from our trunk mains network, and what we call the distribution mains. Although they are all water mains, they are very different. The trunk mains are the motorways of our network. They move large volumes of water at high speed over quite long distances, they do not have many connections and they do not usually leak very much, but when they burst, a lot of water comes out. You can fill an Olympic swimming pool in 40 minutes from one of those mains. We need to distinguish that from --

Leonie Cooper AM (Chair): Both the Islington burst and the Hackney burst were on trunk mains?

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): These were all trunk mains, mainly 24-inch, really big pipes.

Then we have the distribution mains, which are the ones that connect from the trunk mains to people's houses, and they are typically 4 to 6 inches in diameter. To follow the road analogy, they are more like the side streets behind the high street in any town. You get lots of little bumps and knocks and problems and that is where the leakage takes place. Most of the leakage is on the distribution mains because there are lots of connections and joints and the leaks occur at connections and joints; you do not have so many on the trunk mains. However, it is the trunk mains that have been bursting. That is what has been causing these devastating problems.

What are we doing about it? Two things. First of all, we have an immediate independently led forensic investigation underway, which we will report within the next few weeks, before the end of February [2017].

Leonie Cooper AM (Chair): That report is not yet completed?

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): It is not yet complete, but we will share it. That is being independently led by a man called Paul Cuttill, who is well known in the industry. That is looking at what happened in each case, why it happened, how we and others responded to it, what lessons we can learn straight away and any quick learning from that, particularly looking for patterns of failure. Are there connections here? Are there things that we should be working out from to learn more things about the network?

Separately, we have a much more detailed review, which is going to take a year, which is going to look at our whole trunk mains network. There are about 2,000 miles of trunk mains across our area, about half of them in London, and that review is going to look back over a number of years at what we know about the condition of the pipes, what we do in terms of maintenance and the period over which we replace them. There is going to be a great deal of very detailed learning from that, which will be ready within a year, in time to inform the business plan for the next five years. That is what we are doing in terms of the response.

The other thing of course we are doing is continuing to work with the customers. We still have a few who are out of their homes. We are working with them. Our loss adjusters have been working with homeowners and with businesses. There is a lot of pressure to get that work completed as quickly as we can.

Leonie Cooper AM (Chair): Thank you very much for starting us off, Richard. Danny, is there anything you want to add at this point?

Danny Leamon (Head of Water Networks, Thames Water): No, Richard covered it all. I will chip in later if something needs more detail maybe.

Leonie Cooper AM (Chair): We are going to get into a lot more detail as we continue. I would like to then come to Feryal [Demirci] and Richard as two of the Councillors.

Can you give us an idea of what has been the impact of these floods and these bursts for residents? Also, of course, for businesses that have been affected, can you paint a picture for us of the impact?

Richard Greening (Chair of Policy and Performance Scrutiny Committee, Islington Council): Indeed, there were approximately 100 residents who were immediately affected by the burst at the Angel. That burst was described to me consistently as a 36-inch main rather than a 24-inch main.

Danny Leamon (Head of Water Networks, Thames Water): Yes, 24-inch and upwards.

Richard Greening (Chair of Policy and Performance Scrutiny Committee, Islington Council): The volume of water coming out was pretty horrendous; 2 cubic metres a second. It is an unfeasible amount of water. The figure I believe is correct, 2 cubic metres a second, but I guess with the swimming pool in 40 minutes, one would need to check the maths of that. Just looking at the videos, clearly, it is a huge amount of water.

Equally clearly, although we are not unused to the situation of Thames Water mains having broken and water flowing down the street, usually the drain and the sewage system is enough to cope with that. That does not mean we do not get extremely frustrated when there is poor communication from Thames Water about these issues and they seem to carry on and carry on, as indeed was the case with Stoke Newington.

Leonie Cooper AM (Chair): No, but we could see from the pictures that that did not happen at all. Angel just looked like a lake with a few strange objects that should not have been in it and, given what Richard has just said about the volume and the speed of travel of the water, you can see that it was far too much really for the drainage system to take away. What was the impact?

Richard Greening (Chair of Policy and Performance Scrutiny Committee, Islington Council): Clearly, it was an emergency situation, which the Fire Brigade responded to very rapidly at 5.00am and a few minutes afterwards the Fire Brigade was already there. It immediately asked Thames Water to attend and was given a two-hour response time or something that did not look like an emergency response.

Therefore, our first concern really is - and we had evidence last night from colleagues at Thames Water about the difficulty of closing off these trunk mains - that to start earlier clearly would be helpful. The Fire Brigade report is extremely revealing because it shows that about an hour in there were a much smaller number of properties affected and what looked like a much smaller leak. By 9.00am, by the time the main was closed off, the flooding area was 600 metres by 300 metres and many businesses and residents had been affected. Eight people were re-housed in temporary accommodation and of course many of the businesses at Camden Passage, which were looking forward to being able to do some very good trade in that run-up period to Christmas, had extremely expensive antiques completely wrecked by this incident.

We will be returning to a more detailed discussion with the residents and businesses now that Thames Water has confirmed that it will be holding a meeting on 1 February [2017], which we will also be participating in.

Leonie Cooper AM (Chair): Thank you for that, Richard. Feryal, do you want to add anything to what Richard has just said or shall I start to bring in the other Members of the Committee on further questions?

Feryal Demirci (Labour Councillor for Hoxton East and Shoreditch): I have nothing really to add apart from that it was quite devastating and it was quite vast, but I will wait for questions, Chair.

Shaun Bailey AM: How do water companies and local authorities and others respond in the short term to water mains incidents? How do you let the local people know and what emergency measures do you take?

Danny Leamon (Head of Water Networks, Thames Water): We have extensive incident management procedures. We have monitoring equipment all across our network that informs us of when a pipe has failed in this nature. We mobilise our resources. We have resources working 24/7, 365 days a year to respond to those incidents. We mobilise those teams immediately.

In terms of emergency response, typically it would take us, from a standing start, around two hours to get technicians to sites. Sometimes that can be quicker if we have technicians working in the area. The nature of these bursts is that they sometimes happen in the early hours of the morning, and so we would utilise our standby resources. There are fewer people working at night than there would be during the day, as you probably imagine. Therefore, it would take us typically two hours to respond in terms of getting people to site to start the isolation. While that is happening, we have a control room that also works 24 hours a day, which is looking at understanding that part of the network. We have contingency plans in place for the sections of pipe and we can understand immediately what we need to do in order to isolate that pipe.

What they are also doing at the same time is doing an assessment to understand the implications of shutting that pipe because one of the issues we have is that while the pipe is having an immediate disruption to the local area, as Richard [Aylard] outlined, these large pipes can supply [water] to very large areas of London, typically anywhere from in excess of 100,000 to 150,000 customers in some cases. Within that we have hospitals and other significant special-needs customers that we need to be very careful of before we turn off their water supplies. Therefore, we are trying to assess that risk while we are mobilising our resources to understand what action we need to take and make sure we take the appropriate action to deal with that risk. We try to understand how we reroute supplies and the implications of shutting down that pipe, and then we get there and shut that pipe off as quickly as we can.

One of the things I should probably point out is that in order to shut one of these sections of pipes, it can take between two and five valve operations in order to do that. Each valve is very large and can take up to 20 minutes to shut. It takes two people to shut each of those valves. Most of those valves are located within four-way junctions in the middle of London and so getting out safely to do that is one thing we need to be a bit mindful of for our own staff and we take support from the police and the other emergency services in order to do that. It is not a quick operation. If you look at the eight bursts that we have had over the last couple of months, on average it has taken us between two and four hours to shut those pipes. As was said earlier, the amount of water we are talking about is extensive during that period of time, about 1,000 litres a second.

Leonie Cooper AM (Chair): That is an awful lot of swimming pools that we have now filled in four hours.

Shaun Bailey AM: Does it take that long because this system is old or it is just a huge system, or is it a case of capacity and you could or should have more staff on?

Danny Leamon (Head of Water Networks, Thames Water): As we have said, in London we have 2,000 kilometres of large pipes and they are transferring large volumes of water and so, when there is a failure there is a lot of water that comes out of these pipes very quickly and much of the damage is done within the first half an hour. It does get worse the longer the pipe is running, but we are talking about anywhere in excess of 3 million litres of water in an hour that would be expended from these pipes and so it is a lot of water.

What we do not have currently on those pipes is a lot of automation and the ability to isolate these mains remotely. That is something we are looking to invest in in the future that enables us to isolate these pipes more quickly. However, what we have to be very careful about when we shut these pipes is that because of the amount of volume of water they are carrying and the speed that water is flowing at, if we do not shut it correctly or we shut it too fast, all it will do is cause other bursts elsewhere. We have to do that very carefully.

Shaun Bailey AM: I understand that. I am not asking you to take a risk. I am asking you about capacity. Does it take so long because these things take that long, like it takes a certain amount of time to get to New

York on a plane and you cannot do it any quicker, or is it a case of you could have more people? For instance, you said that you do not have as many people on in the night, which makes perfect sense. Do you have data for when most of these bursts happen? Is there a reason these things happening? Do you monitor that? Do you look at the trends? Do you plot the trends?

Danny Leamon (Head of Water Networks, Thames Water): Yes, absolutely, we look at the trends. We have adequate resource and when one of these pipes fails all resources are re-routed to this incident and so we have adequate resources at night to get to sites quickly. It is just the time it takes to get somebody from a standing start to get to this location. We are not an emergency service. We get there as quickly as we can. What we have to do then is to get access to the valve that isolates the pipe and, as I tried to explain earlier, it is not always that easy because it can be in the middle of a four-way junction and so we need to do that in a safe way. We need to get access. We need to close off, in some instances, four roads to enable us to operate one valve --

Shaun Bailey AM: Thank you. I do not mean to badger. I just want to slightly move on. Just to take your point, you are an emergency service in this context because, once that pipe has burst, it is a massive emergency. I just want to put that out there. How do you engage with communities to pass on warnings about recovery and compensation? What steps do you take to get in touch with harder-to-reach communities?

Danny Leamon (Head of Water Networks, Thames Water): At the time that we have a failure, we use various means of media to contact customers and inform them. We use our website and we use social media, although I would say that we have a long way to go in terms of improving our social media contact. It is something that we are relatively new at and something that we are working to improve every day. We send resources to the site immediately to provide that customer care. They are our own resources. We have our own customer care teams and our own operational resources that go to site as well as a team of loss adjusters and insurance experts, who can go in and initially assist in the clean-up operation to pump out the water and to start to restore electricity supplies, for example.

As well as that, we make sure we deal with insurance claims and make sure that people get their lives back to the way they were as quickly as possible. In some cases that is done very quickly; in some cases that can take longer. As I say, we have 20 customers at the moment who still have not been re-housed following those eight bursts that we had before Christmas [2016]. The vast majority of people are back in their houses, but we are working and supporting those customers over quite a long period of time to repair the damage.

Shaun Bailey AM: Just a final question, Chair. Have you taken steps to automate these things? Correct me if I am wrong, but it would strike me that people pay bills and so you must have contact details, phone numbers, etc. Could you automate some of this process?

Danny Leamon (Head of Water Networks, Thames Water): We have a text message service that we can send out to customers where we have those contact details to inform them and we do that. However, primarily, customers contact us. We have a telephone system that informs customers when they contact us of what the issue is. We alert them immediately that we are aware of the situation and what the status is with our resources in terms of responding. Again, we are trying to improve that by making sure we have better contact information for all those customers. In not all cases do we have the homeowner's mobile number, for example, and therefore the ability to text them. That is something that is improving over time, but we do not have the ability to contact every single customer in the situation of a burst to tell them or to warn them about that situation.

Shaun Bailey AM: As someone who works with young people, you should really major on mobile phone numbers because many young people do not have a landline. Landlines are something of the past now. That was just an observation. Thank you, Chair.

Leonie Cooper AM (Chair): Can I just come back to this two to four hour wait? Are there any warning signs ever of an impending burst on one of these trunk mains or on one of these motorway routes? After two to four hours, with the amount of volume -- We all know water is a huge shaper of the whole of the planet and it is one of the things that makes the world look the way it is, and so having all of this in an area where it should not be; it should be *in* the trunk main.

Danny Leamon (Head of Water Networks, Thames Water): We have a maintenance regime in place that --

Feryal Demirci (Labour Councillor for Hoxton East and Shoreditch): Sorry, Chair, before Daniel and Richard [Aylard] come on in this, can I on that point just elaborate on the London Borough of Hackney's experience? It may or may not be an indication of a potential flood to follow, but with the Hackney incident, residents and the Council had reported a leak on the Thursday before and then the burst happened on the Sunday, but no action. It was the same spot and the same area. I personally do not know whether this was an indication of the burst or if it was from the same main, but residents had reported it and they said that it was getting worse and various different businesses in the area had reported it to Thames Water, but no action or contact was made with residents.

Leonie Cooper AM (Chair): It would be very interesting to know if there was a link between the warning sign, if you like, on the Thursday and the subsequent trunk burst and whether there is some learning from this. Will your report be covering that angle?

Danny Leamon (Head of Water Networks, Thames Water): Yes, picking up on the specific incident, from the eight bursts we had, this is the one location where we were aware of a leak in advance of the failure. We were at the time investigating to try to understand whether or not the leak was on that pipe and to try to understand where that leak was so we could put in place the appropriate action in order to plan and organise a repair. Unfortunately, in this instance, the burst occurred before we had the opportunity to assess that effectively and could carry out a repair.

For that very reason, we do have a substantial maintenance regime that we carry out across our trunk system, primarily focused around the highest consequence pipes, and so it is a very large system. At the moment most of our investment in maintenance looks at those pipes that have the highest consequence when they fail and so we have monitoring equipment as well as internal surveys that we do. We have a parachute system that we send up the inside of the pipe and that enables us to survey whether or not there is any leakage on that pipe. We have 1,200 survey points on those high consequence locations and we survey them every year and that informs us --

Leonie Cooper AM (Chair): We are going to come on to talk a bit more about maintenance. I was just wondering whether there is something from the warning signs that would allow us to perhaps pre-empt some of these bursts from happening, but we will be coming back to that.

David Kurten AM: It is a terrible thing when there is a burst water main or anything like that. I am just wondering if any of you have any idea for the people and the businesses that were affected how long it takes for them to get compensation or insurance payments.

Feryal Demirci (Labour Councillor for Hoxton East and Shoreditch): All I do know - and one thing I would compliment Thames Water on - is the fact that it had made contact with the businesses and the loss adjusters had been in contact, but I am not aware of the length of time that may take.

Richard Greening (Chair of Policy and Performance Scrutiny Committee, Islington Council): It would take many months for businesses to recover. Of course Christmas has gone. There are millions of pounds of damage created, particularly for some of the antiques businesses on Camden Place, but by no means only them. The recovery is going to take a long time. We were told before Christmas that Thames Water was organising meetings for both residents and businesses and it has taken a little longer than we wanted, but that is now happening on 1 February [2017]. We will be digging into that issue at that point and will be inviting colleagues from other Boroughs to join us as well because, clearly, this is an absolutely critical question. However, today, I do not know the answer.

David Kurten AM: Thames Water, do you have any immediate compensation when it happens, to see people through until the loss adjusters and everyone makes their assessments?

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): Our loss adjusters are on the spot as quickly as we can get them there. Usually about between 15 and 20 loss adjusters will go to the scene. They will each take on a number of customers and they will assess what the immediate needs are and they will start taking details. They will also be working with our contractor called Floodcall [emergency flood services company], whose immediate job is to get things dried out, pumped out and sorted out. The loss adjuster process starts straight away. If people need an immediate payment, there is an immediate payment made and they start work on the process of compensation.

It is particularly difficult because there are some things you cannot be compensated for. I have been flooded - fortunately not by Thames Water - and I was out of my home for nearly a year and I know what it is like to lose sentimental possessions that you cannot put a value on. There are some things you cannot be compensated for. You certainly cannot be adequately compensated for the disruption to your life and to your family's life. Even ten years later it seems like it was yesterday. I always worry it will happen again and so I do sympathise with this.

We do have a very good firm of loss adjusters. We dumped our previous firm because it was not doing a good job and we are doing well with this group. I am not saying it gets everything right immediately and things like antiques are a particularly difficult area, which Councillor Greening has mentioned.

I am sorry we have not had a broad-based meeting and that is now planned, but what has been happening is one-to-one discussions with each of the customers and with each of the businesses, just assessing what they have lost, what is appropriate compensation and how quickly we can get it in place. It is not as quick a process as we would like because people are trying to put their lives straight at the same time as they are trying to get their business records, which are in many cases soggy, flooded or lost. We are acutely conscious of this. It is absolutely our liability - there is no question about that - and we are getting on with it as fast as we can.

David Kurten AM: Maybe this is a question to Councillors in Hackney and in Islington. You might know more about this. Do you have any evidence of private landlords under-reporting flooding and perhaps preferring to redecorate and re-let? Is there any evidence of that or not?

Feryal Demirci (Labour Councillor for Hoxton East and Shoreditch): Not that I am aware of in my borough at the moment.

David Kurten AM: That is just one particular concern, but if it is not happening that is good.

Feryal Demirci (Labour Councillor for Hoxton East and Shoreditch): At least it is not something I am aware of.

Richard Greening (Chair of Policy and Performance Scrutiny Committee, Islington Council) Yes, but “not aware of” does not mean it is not happening.

David Kurten AM: All right, thanks.

Leonie Cooper AM (Chair): This is the issue that has been raised a couple of times with me, the idea that rather than reporting that there has been flooding, which might then change their own insurance arrangements, they just prefer to redecorate and then re-let. Is that something that you have come across at Thames Water?

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): I would like to pick that up. It tends to happen more often when we have had sewer flooding and I do not want to confuse the issues, but people are reluctant to report that they have been flooded with sewage. What they fail to recognise is that when it comes to prioritising alleviation schemes, we work on a cost-benefit basis and, if we are only told about half the properties that have flooded; we only have half the benefit for the equation. We would always encourage anybody who has been flooded to please report it to us with evidence. It will go on to our sewer flooding history database and that helps to prioritise the solutions. I can understand the temptation not to report, but it is not in people’s best interests.

Leonie Cooper AM (Chair): All right. It is really important that people do come forward and report it, particularly if it has been on the sewage side.

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): I would urge every Councillor and every Minister of Parliament (MP) to say to people who have been flooded, “Have you reported it to Thames Water and do you have a written acknowledgement?” That will help to drive solutions.

Leonie Cooper AM (Chair): Thank you. I am going to bring in Jennette now. Jennette, of course, is the Assembly Member whose patch includes both Islington and Hackney and so she has some very strong feelings about the recent incidents, which she is very familiar with, as are Richard [Greening] and Feryal [Demirci].

Jennette Arnold OBE AM: Thank you, Chair. Yes, thank you for that. Of course I share the anger, the frustration and the sense of being let down by Thames Water that I have had personal conversations about and last night at the meeting convened by Councillor Greening the sort of despair that was felt in that room. As you have said, there are no words to this. However, it goes on and on and on. Richard [Aylard], I jokingly said to you, “Another flood, another meeting”. We have been meeting like this over the years. I can go back to

your meeting with us about flooding with [former] Chair Darren Johnson, with [former] Chair Murad Qureshi [former Assembly Members] and now with Chair Leonie Cooper AM.

I really want to try to get some information out there and some real concrete stuff from you about maintenance. I am going to be provocative here and say to you that it seems to me - and I am speaking on behalf of people - that your maintenance programme is based on, "Let it flood, let it burst and then we will come in and we will replace that piece of pipe", because they do not seem to have any sense of any progress around your maintenance programme in London.

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): Let me explain. First of all, that is one of the things that this independently led extensive review will pick up in great detail. The problem is that we have well over 1,000 miles of these trunk mains - 24, 36 and in some cases even 48-inch mains - under London. If you dig down and look at the top of the pipe, it can be in perfect condition, as good as when it was laid. Even if you dig up a 20-metre section of the pipe, it can be absolutely perfect. Yet you can go one metre along and there is a flaw in the casting that has been there since it was laid 150 years ago and is just waiting there like a ticking time bomb. Our job is to find those flaws.

The way we do that is we first of all work out where the worst consequences are and what would happen if this particular section of 100 metres bursts. Are we going to flood a hospital, the Underground or an area of basements, or at the other extreme, is it going on to a rugby pitch? We work all of this through to find out where the highest consequence areas are. Is it under a railway line, for instance? Could we be putting a whole train full of people at risk if this pipe were to burst?

Then what we do is we are increasingly fitting what are called Sahara chambers. This is a way of getting into the pipe while it has water flowing through it. We put into it what Danny [Leamon] described as a parachute with a sensing device on the back of it. These are remote sensing devices. We are developing our own. We have been watching best practice around the world and we are trying to improve on that. Those parachutes go down from one chamber to the next in all the highest-consequence areas. They do spot leaks. We found about 300 leaks in this way on trunk mains last year. Any leak on a trunk main, because of the pressure, is potentially a really big burst. To put it in perspective, we found 300 of those on trunk mains and we found 44,000 leaks on our distribution mains and so, again, it is a very different system. When we do find the leaks, we can fix them.

The other thing we are increasingly doing is we are fitting listening devices to our pipes. Every pipe makes a distinctive acoustic signal or a hum as it is operating. These listening devices try to detect whether that noise changes because, if that noise changes, it could be an indication that there is a problem. We can get in, depressurise the pipe and sort it out. It is in a very early stage of operation, but there are a lot of those listening points going in now. In fact, at one of the bursts in Leigham Vale [in the London Borough of Lambeth], we did get a warning, but only three minutes before the burst happened. I would have liked that to have been three weeks or even three days; it would have made a big difference.

This monitoring is going on but we have to get better at it. None of the bursts that had happened were in the top 10% on our risk register and so we have to get better information. However, as I say, it is very difficult because you look at a pipe and, even if you completely dig it up, it is in perfect condition all except for the bit that went bang. It is trying to work out where those things are. These are cast iron and they have been in the ground for 150 years. They were not cast to modern standards of quality control; they were laid by men using block-and-tackle and pulleys off the back of carts. Some of them were potentially dropped in the ground, as we can see when we dig them up and our metallurgists look at them.

The question about maintenance - whether we are doing the right things, whether we are doing enough - is a very good one and it will be front and centre of this independent review and we will share that with you. We are happy to come back in about a year's time and bring the person who chaired the review as well and get some of the experts and you can really kick the tyres on it. That work is going on and it will continue.

Leonie Cooper AM (Chair): We might very well hold you to that.

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): I am more than happy.

Leonie Cooper AM (Chair): This is such a big issue for Londoners.

Danny Leamon (Head of Water Networks, Thames Water): Can I just add to what Richard said? To answer your question, we have monitoring equipment. We have ways of identifying leaks as they occur. We have monitoring equipment to inform us when leaks or bursts occur. What we do not have is fantastic information about the condition of our assets. Of those 2,000 kilometres of pipes, modern technology at the moment is not in a place such that enables us to carry out an x-ray of the pipe along its entire length that tells us the exact condition.

The bursting in Islington is an example. We do not have the full forensic metallurgy results back yet and that is going to take another three or four weeks to come back. If you look at the pipe as it came out of the ground, as Richard [Aylard] was alluding to, 90% of that pipe is as good as the day it was laid. It looks in very good condition. We have taken a pipe couple out of that pipe, a small disk, which we would send away to analyse which helps us to inform the condition of our assets along its length. That would have told us that that pipe was in very good condition and did not need any investment. If you look at the small section on the pipe, about this big, it is completely corroded through, but our current techniques that we use would not have informed that that pipe was in poor condition.

Jennette Arnold OBE AM: Can I go back to Richard [Aylard]? The programme approach you are taking now you have changed in recent years because I heard last night from one of your area officers that you had a previous approach where you worked with Boroughs so that you could pick up intelligence. You worked with Boroughs and then there was an agreed programme and then that was carried out. However, now you are working on a maintenance approach. The words "pressure management approach" were used.

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): There is a misunderstanding there, Jennette. If I can try and clear this up?

Jennette Arnold OBE AM: Yes, if you can clear that up.

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): We are talking here about the leakage programme which is designed to cut London's leakage. That is the small four and six-inch mains. We continue to replace those. We have done the ones that gave us the biggest benefit because the aim here was not to stop flooding; it was to stop leakage because we need more water for London.

Jennette Arnold OBE AM: Can we just focus on flooding then today?

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): If we just finish off on the leakage one, we are still doing distribution mains replacement, but at the same time in some areas it is more cost effective to manage the pressure because the higher the pressure in the pipe the greater the leakage. These are these little four and six-inch mains. We have variable speed pumps. We are changing the pressure during the day because the more pressure you put in a pipe the more it leaks. That has nothing to do with these really big trunk mains where the problem is not leakage; the problem is these devastating bursts. We are just trying to keep the two separate.

Jennette Arnold OBE AM: Is the maintenance programme that you have for these 36/48 inch mains, hubs or centres the same programme that you have always had or do you have plans, given that I have a paper of four sides here which talks about flooding all across London? In terms of the maintenance programme, what plans do you have? It would appear to me and those representing the people affected that the current maintenance programme is just not good enough.

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): I agree with you on that, but Danny can talk about what we are doing.

Danny Leamon (Head of Water Networks, Thames Water): I certainly agree. The programme we have at the moment is the same programme we have had for the last two reporting periods, the last ten years. Technology is advancing fast and as that new technology becomes available, we look to change our approach to adopt that new technology. We have monitoring equipment on mains for example at the moment. Those monitors primarily tell us when a burst has occurred but, as we have just discussed, in the time it takes us to respond, it enables us to respond but the damage is done before we arrive. The latest technology we use is something called Syrinix [pipeline monitoring solutions company] and this is constantly monitoring sections of pipe and tells us whether there is that noise change. The noise change tells us whether there is a leak in advance of a burst. We have very few of those at the moment because that technology is relatively new.

Leonie Cooper AM (Chair): Can I just be completely clear, then? What you are saying is that you are agreeing with Assembly Member Arnold, who just put it to you that the maintenance is not good enough? You are saying you do agree that you need to up your game and your plan is to more extensively use new technologies, which include these listening devices and the parachutes and getting down into the pipes?

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): Is it not good enough because we have been devastating our customers' lives. We have to do better at it. The question is how to spend money to get the biggest possible impact and this is what this review will help us with. We have been developing the maintenance programme over the years as new technologies become available and we are covering more and more of the network, but we need to review that and see how we can move further and faster. We want to try and eliminate these bursts as quickly as we can.

Jennette Arnold OBE AM: I just want to feed back. I am saying it was about maintenance. There is the perception that not enough money is going towards maintenance, but your profits to your shareholders have been increasing. Can you just explain why your profits have been increasing and your funding of the crucial maintenance work and the workforce has not been increasing at the same rate?

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): First of all, the profits have not been increasing. They have actually been going down a bit compared to five years ago. In the last 18 months we have reinvested over 80% of our profits in further investment in our networks. We have been

spending £1 billion pounds a year on average in real terms over the last 11 years and that is forecast to continue.

The challenge is how we spend that money as effectively as possible. When you are talking about maintenance on a pipe it is a bit binary. Either it is fit for purpose or it is not. If it is not, it is about £5,000 a metre to replace it. Which metres are we going to spend £5,000 on? We have to have better information in order to spend the money efficiently. That again is what this forensic review is going to come up with: a better approach to spending. We invest the money but customers repay it through their bills. We have to be sure that we are investing it sensibly and we have to be sure that customers support us doing that.

That is why we are now working on our next five-year plan. A lot of discussions are happening with customers and this independent review will feed into that and show us how we can spend that money as effectively as possible.

Cllr Feryal Demirci (Labour Councillor for Hoxton East & Shoreditch, Hackney Council): Chair, I just want to come in on the way that Thames Water is managing the high-consequence, high-risk areas. There is clearly something that does not work with that procedure it is following because for the incidents in Hackney there was an indicator. It was leaking. There was a leak almost like four days prior and they surely would have known that it is a 30-inch trunk main that was underneath that space that could have potentially have been leaking. I just want to know, if it is a high-risk area, why it was not explored further before the leak happened.

Leonie Cooper AM (Chair): This was the issue that we were talking about earlier on when we said, “Do you have a warning in advance of the burst occurring?” That is exactly the point that we asked earlier on and you had the information in relation to Hackney. I am going to bring in David [Kurten AM] at this point now.

Jennette Arnold OBE AM: Sorry, Chair, can I just hear from Richard [Aylard] about this thing about maintenance? We just need to spend a few more minutes on maintenance.

Leonie Cooper AM (Chair): Very briefly because we are running out of time.

Jennette Arnold OBE AM: It is so important.

Leonie Cooper AM (Chair): Richard [Greening], did you want to come in on the warning?

Cllr Richard Greening (Chair of Policy and Performance Scrutiny Committee, Islington Council): I just want to say the point about the Stoke Newington leak was that it was clear to Thames Water two days before the leak happened that it was the trunk main that might be the problem. In my view, the response was not adequate to that, but there is a whole wider issue about mains maintenance.

Leonie Cooper AM (Chair): Richard or Danny, do you want to answer this point about adequate warning and not doing anything?

Danny Leamon (Head of Water Networks, Thames Water): As I said earlier, I absolutely put my hands up and say that the response with the Stoke Newington job was not adequate. We did not respond quickly enough. We were not able to pinpoint that there was a leak on the trunk main and therefore identify it. We cannot just shut off a large section of pipe without being certain there is a leak on it because of the implications to the wider areas, as we said earlier. In that instance, you are absolutely right. We did not

respond quickly enough and therefore assess and resolve the issue before it became a failure and that is something we have to get better at.

Leonie Cooper AM (Chair): That is in relation to Stoke Newington?

Danny Leamon (Head of Water Networks, Thames Water): Yes.

Leonie Cooper AM (Chair): What about the Angel?

Danny Leamon (Head of Water Networks, Thames Water): In terms of the Angel, we did not get any prior warning of a burst at that location. It was an instantaneous failure and therefore we responded as quickly as we could.

Cllr Richard Greening (Chair of Policy and Performance Scrutiny Committee, Islington Council): What time did you get on the site?

Danny Leamon (Head of Water Networks, Thames Water): At Islington?

Cllr Richard Greening (Chair of Policy and Performance Scrutiny Committee, Islington Council): Yes.

Danny Leamon (Head of Water Networks, Thames Water): I cannot remember. I do not have those details in front of me without searching through my notes.

Jennette Arnold OBE AM: I was just going to finish and say, Chair, that we have focused on Islington and Stoke Newington because, as ever, they captured the media, but it is the increasing number of other devastations across London we are focusing on as well. I look forward to receiving the Cuttill report and can I just confirm with Richard that that is the same report that in his answer to me - because of questions I raised with the Mayor on 14 December [2016] - he is here speaking as well about a meeting between Thames Water and his Deputy [Mayor for Environment and Energy, Shirley Rodrigues] and a promise of a report coming from Thames Water by the beginning of February [2017]. Richard, is this the same Cuttill report so that we can then have that? As you have said, this is going to run and run because, Thames Water, you are seriously on the edge.

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): Yes. Paul Cuttill's report will be finished in February 2017 and it will be sent to the Mayor. That is the report I was mentioning to the Deputy Mayor [for Environment and Energy], Shirley Rodrigues, when I saw her.

I have the times on Islington. The burst was reported by the Fire Brigade at 5.07am. We had our technicians on site at 6.52am. The pump was shut off at 8.48am and the main was shut at 9.15am. Therefore, it was not good enough, but those are the facts.

Leonie Cooper AM (Chair): It was more about whether or not there had been a prior warning. David, we do not want to talk about drains but you wanted to ask a question about water pressure?

David Kurten AM: That is fine. One of you mentioned earlier that if there is a higher pressure in the pipes that means there is a greater probability of a burst because of fluid dynamics. Has the mains water pressure, particularly in the trunk mains where these bursts have happened, increased in recent years?

Danny Leamon (Head of Water Networks, Thames Water): In terms of pressure, no. What we did many years ago to try and take the demand off of these aging pipes was to install the London Water Ring Main. That was a large investment made by Thames Water back in 1994, which prevented the need to push more water up those aging pipes. That took a large weight off of those pipes and we have continued to extend that ring main over time. Essentially, we need to develop a programme of replacing those pipes so that they can cope with the increasing growth of London over the next 25 to 30 years.

At the moment what we are trying to do, as Richard [Aylard] said earlier, is build the intelligence case so that when we go and talk to our regulator and to our customers, we have enough evidence to demonstrate the level of investment that we need. At the moment our case is not robust enough in order to generate the level of investment we would need to replace those pipes.

David Kurten AM: By a ring main, do you mean that you have actually built and installed extra trunk mains?

Danny Leamon (Head of Water Networks, Thames Water): Yes. There is a tunnelled system under London which was installed back in the 1990s that takes all of the large water from our biggest waterworks and transmits it around London. Then we fed that into those trunk pipes that are spread across London.

David Kurten AM: Does that use a different material to the cast iron that people had 150 years ago?

Danny Leamon (Head of Water Networks, Thames Water): Yes.

David Kurten AM: That would be more durable and would last longer?

Danny Leamon (Head of Water Networks, Thames Water): Absolutely, yes.

David Kurten AM: It would have less probability of having a burst?

Danny Leamon (Head of Water Networks, Thames Water): Yes.

David Kurten AM: Is your ultimate ambition then to replace all the cast iron pipes with a newer material?

Danny Leamon (Head of Water Networks, Thames Water): Ultimately, but our estimate at the moment is that that would take somewhere in the order of 40 years and cost somewhere in excess of £20 billion. We have to make sure we understand which bits of pipe we need to replace and then go through that systematically and work with all the key stakeholders in London in order to do that. Trying to work in London is incredibly difficult, as you can imagine. We have made a commitment to replace some of the pipes that have burst recently and they remain out of service until such time as we do that. Just to replace one kilometre of pipe would take somewhere in the order of six to eight months and we have 2,000 kilometres of pipe across London as we said earlier. It is not something that is quick. There is huge disruption for London, in terms of traffic disruption, etc. We are looking for the most intelligent way to do that and the most efficient way so that it does not push up customer's bills as a result.

David Kurten AM: That is true. I am just that thinking £20 billion is a lot of money, but I am just thinking of the cost to people and businesses over 40 years. Would that be more or less than £20 billion?

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): You are right, David. The question is over what period we should do this and where we should start. If we have 2,000 kilometres, we

do not want to start with the wrong kilometre. We have to have a rational phased programme for doing this and that is what this extensive review over a whole year will come up with: the sensible pace to do this work, tackling the worst areas first, getting the biggest benefits to customers and keeping the costs as low as possible. As I say, that is not something that we can just give you a snap judgment on. We recognise it has to be done, but it has to be done very thoroughly.

Leonie Cooper AM (Chair): We are looking forward to seeing both the Cuttill report in February 2017 and also this longer-term and more detailed assessment next year.

I am going to now bring in Caroline, who has some final questions to put to you. Thank you, David.

Caroline Russell AM (Deputy Chair): Yes. I should first declare an interest. I am also an Islington Councillor and I was at the meeting in Islington last night.

Just drilling in a bit more into how you are making your decisions to target which bits of pipe, it seems that you are in a situation where you really need to deal with all of it. You talked about the areas of high risk and you know the places where hospitals, for example, are going to be affected, but the cost to Thames Water frankly of the devastation that happened at Upper Street at Christmas is presumably huge numerically in pounds, apart from the emotional and other devastation to the community and all the people who just could not travel through Upper Street as well.

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): Absolutely, it is widespread.

Caroline Russell AM (Deputy Chair): It has a huge impact on Londoners. It seems there is two things. One is these roads. The motorways for water coincide with the red routes in London. Do you need some kind of different arrangement with Transport for London (TfL) and with the Mayor so that you can get a much more ambitious programme of investment in these roads? Does London have to think strategically about how important water is for our city and therefore do we have to prioritise getting these water motorways installed as quickly as possible?

Also, we heard last night about some of your leaks, like in Stoke Newington, where you get a bit of a pre-leak and you get a bit of a warning. The one that happened in Upper Street was a catastrophic sudden failure, but sometimes those pre-leaks are happening under the ground and you have a lot of erosion of the subsoil under the road, which can lead to big hole appearing in the road --

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): It can, yes.

Caroline Russell AM (Deputy Chair): -- which is also a significant risk for Londoners. The question is about how you will prioritise the places to invest when actually investing in fragments may even be contributing to the increase in bursts.

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): That is one of the things which this 12-month review will be looking at. We do look at the highest consequence areas. We look at areas where there are a lot of basements because if we had somebody who was trapped in a basement that could be an absolutely tragedy. We look at the underground, we look at hospitals and we look at railway lines. Anywhere in London, if you have a burst of the size we have been talking about, from a 24/36-inch main, you

are going to cause devastating problems. That is why we are trying to get better information. There is clearly going to need to be some sort of a rolling programme of targeted replacement.

You are absolutely right about better relations with TfL and we work very closely with it, but it has a job to do. Its job is to keep the roads going, not to let us in and give us free reign. There are robust discussions there, but our Chief Executive Officer (CEO) met Leon Daniels, who runs Surface Transport. There are some joint workshops being arranged to see what we can get better at. We will get them involved in this review as well.

However, as Danny [Leamon] says, these are massive pipes and if we are going to replace them it takes months. If we start taking some of these red routes out, of course that is where they were laid in the 1850s. We cannot easily move them now. We have to be thinking all the time with the boroughs, with the highway authorities, with TfL and with the red routes what the sensible way is. We are going to have to get some kind of rolling programme which can say, "Look, in three years' time we are coming down your high street. How can we manage to co-ordinate that with other work? How can we work with all the council's priorities?" That sort of thing goes on at the moment, but if we can get an agreed rolling programme, we will need a lot of help from TfL and from the Boroughs and particularly from the Mayor. That is why I am so keen to come back to you when we have this report and talk about it.

Leonie Cooper AM (Chair): My final question - and this is the last one of the day - is that not everybody on this side of the table necessary accepts climate change or climate alteration is down to human activity, but if we accept that the climate has changed and we have some element of more substantial rapid rainfall how far do the effects of these burst water mains perhaps so that there is a small-scale model of the kind of effects that surface water flooding could have in the event of a very severe rainstorm across the whole of London?

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): We are very clear that climate change is already affecting us in two ways. One is that it is going to increase demand for water in summer because of hotter temperatures, which puts more pressure on getting leakage down quickly and reducing demand. At the same time we expect to get wetter winters and we expect to get more frequent severe events all across the year.

I would not want to draw too many parallels between a gushing pipe in an absolutely tight location and even the narrowest thunderstorm burst which hits over a wider area. These are separate problems that we need to address. The only link I can see is that we need to make sure that road side drains and gullies are kept clear, which is a joint responsibility for us and the council such that when there is water, wherever it has come from, it can be drained away and dealt with quickly.

However, entirely separately to the clean water problem we are doing a lot of work on sustainable work on drainage with Drain London and with the Boroughs. I know that Caroline [Russell AM] is interested in this: we have some really good examples of sustainable drainage. We would love to take you to see them in the London Boroughs of Enfield, Southwark, Hammersmith and Fulham and Wandsworth. There is lots more being done on sustainable urban drainage systems (SUDS) and they are going to be a big feature of our next five-year plan.

Leonie Cooper AM (Chair): The common factor though is that Thames Water has to deal with these things and your response to a catastrophic trunk burst in the Angel or your response to the failure of a massive SUDS scheme across a wide area is something that Londoners rely on your not only supplying us with water but also then making sure that the water then goes away as quickly as possible from areas where it should not be.

Richard Aylard (Director of External Affairs and Sustainability, Thames Water): It is our job to decouple our customer's lives from impacts of either weather or in operations. They should be able to just turn the tap on when they want to and flush the toilet when they want to without worrying about any other consequences and we have to get better at that.

Cllr Feryal Demirci (Labour Councillor for Hoxton East & Shoreditch, Hackney Council): I will just add, with Boroughs and their role in emergency planning, Boroughs do monitor weather and work with emergency service partners to prepare for acts where there is potential surface flooding as a result of severe weather, but in these sorts of incidents it is so instant that it is really difficult to predict and prepare for. Our emergency services and planning has been tested and we will do slightly better with all partners the next time these incidents happen.

Leonie Cooper AM (Chair): I am going to thank all the guests for coming along and also at relatively short notice, but we do feel that this was an issue that was of great importance to Londoners, not just those in the Angel and in Stoke Newington. Thank you very much to both Feryal [Demirci] and Richard [Greening] for coming along from the councils and also Richard [Aylard] and Danny [Leamon] for coming along from Thames Water.

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