HOUSE OF COMMONS

Environmental Audit Committee

Oral evidence: Water quality in rivers, HC 74

Wednesday 13 October 2021

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Watch the meeting

Members present: Philip Dunne (Chair); Duncan Baker; Barry Gardiner; Mr Robert Goodwill; Helen Hayes; Cherilyn Mackrory; Jerome Mayhew; John McNally; Dr Matthew Offord.

Questions 401 - 530

Witnesses

I: Sarah Bentley, Chief Executive, Thames Water; Susan Davy, Chief Executive, South West Water; Liv Garfield, Chief Executive, Severn Trent Water; Ian McAulay, Chief Executive, Southern Water; and Heidi Mottram CBE, Chief Executive, Northumbrian Water.

Written evidence from witnesses:

Thames Water

South West Water

Severn Trent Water

Southern Water

HOUSE OF COMMONS

Examination of witnesses

Witnesses: Sarah Bentley, Susan Davy, Liv Garfield, Ian McAulay and Heidi Mottram CBE.

Q401 **Chair:** Welcome to the Environmental Audit Committee for our final oral evidence session of our inquiry into water quality of our rivers. We are very pleased to have in front of us today the chief executives of five of the UK water companies. Before I ask them to introduce themselves, I would just like to make a very brief house note about the form of this meeting because it is exceptional.

We are holding this evidence session in a week when the House of Commons is in recess. At the time when we invited the chief executives to join us, we thought the House would be sitting and, as a result, we have had a special dispensation from the Leader of the House, following the change in the Covid regulations, to allow the Committee to meet both with a quorum of Members present in the room but other Members who are in their constituencies joining us remotely through this hybrid session, so we are grateful to the Leader of the House and to the House authorities for allowing us to meet in this format today.

This is a subject of great public interest and we wanted to make sure that as many of the chief executives as possible were able to attend and we are grateful to you for doing so. I would just like to start by acknowledging that United Utilities were due to be with us today, but the chief executive is unable to join for understandable personal reasons. That is why he is not with us. If I could start on my left with Liv Garfield, could you introduce yourself and the company you represent?

Liv Garfield: Good afternoon. Liv Garfield, Severn Trent Water. We look after water I guess up to Scunthorpe over to Newark down to Tewksbury and then to north Wales.

Susan Davy: Good afternoon, everybody. I am Susan Davy. I am CEO of Pennon Group and South West Water. Through South West Water we serve the regions of Devon, Cornwall, Bournemouth, some parts of Dorset and West Hants and very recently the Isles of Scilly.

Ian McAulay: Hi. Ian McAulay, chief executive at Southern Water. We service wastewater all the way along from Kent through to Hampshire, then the south-east has a fairly fragmented potable water supply with five or six suppliers in there, so we have a disparate set of supply about half the size of our wastewater supply there.

Sarah Bentley: Good afternoon. Sarah Bentley, Thames Water chief executive. Thames serves London for water and wastewater, the Thames Valley and then water in the Guildford region.

Heidi Mottram: I am Heidi Mottram. I am chief executive of Northumbrian Water. We provide water and wastewater services in the

north-east of England but we also provide water-only services in Essex and in Suffolk.

Q402 **Chair:** Thank you. I am going to start by asking the first set of questions. Generally, what we will try to do is direct questions at individuals. Because this is potentially quite a long session, if you wish to follow up and chip in, then indicate and we may or may not be able to accommodate that. What we are not going to do is ask each of you the same questions in a Question Time style. I think that would drive everybody nuts.

I am going to start by asking you each the same question, to break my own rule to begin with. In the light of what we now know is the state of the rivers, with not a single river in this country in good ecological condition, and in the light of the public recreation that has happened in an enforced way through Covid over the last 18 months, Liv, would you swim in any of the rivers in your area?

Liv Garfield: Yes, and I have. I went wild swimming last year, as I think we have talked about before, as part of us understanding what we could do to try to invest more for the future. I was as passionate as anybody in the room in the fact that I would love to have genuine recreation bathing water quality rivers, and we are actually doing that over the next three years. We are going to create 49 km of river like that in two different parts of our patch.

Q403 **Chair:** Susan, would you swim in any of your rivers and, if so, would you want to check what the state of that river is before you got into it?

Susan Davy: First of all, thank you very much for the opportunity to be here today to input into what will be a very important discussion this afternoon.

In terms of whether I would swim in the rivers, perhaps if I just reflect on the region that we serve and the significant investment we have made over a number of years in what we have as bathing beaches in our region and how those have improved over time. Some 28.7% of the beaches in our region were quoted as being excellent in the 1990s, and now we are up at 98.7% as good and excellent, so we have made improvements in our beaches.

In terms of rivers and river quality, evidently there is more to do and we have pilots that we are now launching on the Dart and the Tavy to think about moving those into bathing water status. Your question was whether I would swim in them—yes, I would. I am a keen paddle boarder and I undertake those activities on the rivers and in the sea.

What is important is to have information and data to enable people to make decisions about where they might want to paddleboard or do other activities that they want to undertake, and I think that is possibly something we will touch on later.

Q404 **Chair:** We will. Ian, what about you and particularly in relation to national parks? I think you have some of the national parks in your area. Is it right that people can visit national parks and not be aware of the condition of the water in which they might be swimming?

Ian McAulay: That is the question that we have and what I am pleased about with this inquiry is that it seems to be getting focused on what we want, which is effectively real-time water quality monitoring.

We have some very beautiful rivers in our catchments, some of them rarest chalk streams. Similar to my colleagues, yes, I would swim in them. I would prefer to have much better information than we do about our bathing waters. I think there is a good parallel to the monitoring that goes on at the bathing waters to establish that water quality but I still think we have a way to go in terms of making that more real-time and taking it to water quality. I do swim in the sea. I live pretty close to the sea so I do swim in the sea as well.

Q405 **Chair:** Sarah, have you ever swum in the Thames?

Sarah Bentley: I haven't swum in the Thames but I would—

Q406 **Chair:** Would you ever advise anybody that they could safely swim in the Thames?

Sarah Bentley: I can understand why people are genuinely upset and concerned about the quality of the rivers and the situation with sewerage discharges into those rivers and, like a number of my colleagues have suggested, making sure that we transparently share information about when those spills are occurring. More importantly, what I have heard in the year that I have been running Thames is that our customers just find spills unacceptable. We find them unacceptable and I am really committed to working out how we can eliminate storm discharges so that people can swim confidently in the river.

There are other chemicals and biological factors in the river, so I think monitoring river water quality more broadly, as we are doing in the trial in the Thames in Oxfordshire, is something I am keen on doing so that we can all swim with confidence when we go out.

Q407 **Chair:** As a Committee, we visited one of the tributaries of the Thames in your area in Oxfordshire. We saw water that we would not wish to get into, and this was on a routine dry day. We are going to come on to data monitoring in a second. I would like Heidi to answer the question about swimming your area. I know you do not have Lake Windermere in your patch but we have just recently had this extraordinary admission that Lake Windermere, one of the most iconic inland waterways in the country, is receiving large quantities of sewage. I don't expect you to answer on Lake Windermere but what is happening around your area?

Heidi Mottram: In the north-east of England, because the vast majority of the population live quite close to the sea, most people take the

opportunity to swim off the fantastic beaches of the north-east. I will be honest with you, I am not a fan of cold water, so I am a bit of a wuss, but I have swum off the beaches of the north-east and they are absolutely fantastic. That is where we find that most people in the north want to do that kind of activity. We are in a great position, in that, like Susan mentioned, 98% of our beaches are either good or excellent.

There are of course rivers in the north-east but they are—just the characteristics that we have—quite fast flowing. Typically, what we find is that the amenity that people want to use our rivers for is canoeing, and normally we are having conversations about weir safety and that kind of activity or fishing. We haven't really had any approaches for swimming in the rivers of the north-east. Typically, everybody is in the sea.

Q408 **Chair:** Thank you. I will come back to Liv. Regulations establish that storm overflows could be used in exceptional circumstances, meaning when there has been a particularly significant volume of water descend on the ground. Do you accept that sewage spills have now become routine and not exceptional?

Liv Garfield: Let me just check to see if I understand the question. If the question is: do we have raw sewage spilling straight into rivers in the Severn Trent patch, then no, we definitely don't. If the question is: do we have spills—and I guess that is the defined regulatory situation where you have permitted water going through—then yes, we still none the less have too large a number of that.

I think, if I had a magic wand, I would go back in time to the 1950s and beg the person in charge of policy not to allow us to allow rainwater to merge into sewers because the sewers have more than enough capacity for all of the sewage work. What ends up happening now is in extreme weather we manage that together but, certainly—talking for my region for my area—that water that goes into it is normally treated, often to quite a high standard, and is definitely rainwater merged in.

So, definitely, I don't want anybody worried that there is raw sewage going into any of the Severn Trent rivers. However, I agree with you: do I think our spill data—would I love to have less spills? Yes, and we are committed to spending £1.2 billion on the environment over the next five years. We have overspent against our regulatory settlement deliberately every year of my time. We have never underspent. We have always chosen to go further, even though we are strong on the performance ratings.

I am as passionate as everybody else in this room. I would love a plan, and one of the things that I would love us to do coming out of this would be to have a strong SPS that says, "Here is a directional statement. This is what we all agree should happen, using science, and let's get after it and let's fix the large spills in order and commit to it across the piece".

Q409 **Chair:** We are going to get into this later, but when the Minister was

before us a couple of weeks ago we were talking about the guidance letter from DEFRA to Ofwat, and specifically focused on a change from exceptional use of storm overflows and spillages from treatment works. The wording had been watered down to infrequent as being an acceptable level. What would you like it to say?

Liv Garfield: Personally, I would go after the science. When I talk to NGOs—and I tend to think they are strongest in this area—what they say to me is, "Make the guidance scientifically driven rather than wording," because wording becomes tricky. What they would love and what they say to me is, "The best measure to look at would be the reasons to not achieve ecologically good status for the rivers", so these things called RNAGs: a reason for not being of ecologically good status. Each river—

Q410 **Chair:** Is this a technical term, a reason for not being of ecologically good status?

Liv Garfield: Yes, and it is what the Environment Agency recommends as its defined scientific technical term and every sector has a certain number of RNAGs and every sector is responsible. Agriculture, of course, would have the largest number by far but every sector is responsible for bringing those down. Those are the things to go after because that is what river quality is based on. What I would love is for the SPS to say quite clearly, "This is our 15-year ambition to bring RNAGs down across the piece". How do we then work on catchments to make that happen?

For the water sector specifically, if you look at the last few years, we have consistently, each and every year, been improving our RNAGs, which is the measure that judges whether are we making the river quality better. I guess on Severn Trent data, we were 11% better last year alone but I would love that because the biggest risk I have on river quality is, while the water sector has improved year on year for the last few years, all of that gap has been eaten up by agriculture, so our rivers have no better quality. We are plateauing but that is because the contribution from agriculture has, importantly, swallowed the investment spent from water companies. I would love us to get into that. That is what I would like. Rather than going after one word I would like us to get a scientific data point and then we cannot debate it again, because it is crystal clear and then we report and measure against it.

Q411 **Chair:** We are going to come on to reporting and the deficiencies in that later. Thank you. Have you made that request as part of the consultation response?

Liv Garfield: We have, yes—simple answer. Do we think we could—

Q412 **Chair:** Could you send us a copy of your consultation? In fact, could you all send us copies of any consultation response that you have made to the Government? I don't think they are public yet so it would be helpful to have that.

Liv Garfield: Of course, I could send you some copies.

Q413 **Chair:** I am going to move on to Susan: 42,000 spills were reported in your area in 2020. What proportion happened in dry weather?

Susan Davy: To pick on the point that you raised around the 42,000 spills and the acceptability or otherwise of that, in terms of those storm overflows—and we have in our region 583 of those storm overflows that are operating during the year—we obviously monitor those and we have been increasing our monitoring and that is where the 42,000 spills in the year are coming from.

In terms of why those are triggering, there is a piece of work that we are undertaking to investigate why those spills are occurring. For 30%, or a third, of those spills we have some of those storm overflows that are triggering more than 40 times a year, and that is what we will be investigating.

In terms of what is driving that, I think what is being demanded of our catchment is certainly shifting over time. I know that over the last 15 years we have had a 20% increase in population in our region. We have had a 50% increase in tourism over the last 15 years and a 25% increase in flows coming through into our treatment works as well. What is being demanded of our catchment is actually increasing and, therefore, when we are investigating why those spills are occurring, a good proportion that is coming back is because of the infiltration and the extra flows that are coming into the network—that 19,000 km of network that we have in our region. That is what we now need to investigate and understand how we can address the infiltration that we are getting into that network.

Q414 **Chair:** Do you monitor the difference between spillages at times of heavy rainfall and times of low rainfall?

Susan Davy: Yes. We know from our monitors that we have in place and we now have 75% of our overflows monitored, so we know when they are triggering and we know the duration and then we can obviously map that to—

Q415 **Chair:** These are the EDM monitors?

Susan Davy: That is correct, yes.

Q416 **Chair:** When will you have 100% covered?

Susan Davy: We will have that done by 2023 and we are obviously on a programme of getting all of that in place.

Q417 **Chair:** Thank you. I would like to touch on some of the costs of improving things. Sarah, I think you are probably the biggest spender in terms of capex on improving the treatment side of your business. Could you indicate how much you think you need to spend to upgrade the sewerage system to a satisfactory, state-of-the-art sewerage system? We will come on to more details about the Thames Tideway Tunnel but what proportion of the cost do you think that would represent?

Sarah Bentley: If I break it down, it might be simpler to explain. First of all, the Tideway Tunnel is a £4.9 billion project. As you know, the Thames Tideway Tunnel is a 20-mile-long tunnel. Currently—and as Liv mentioned earlier—when we get inundated with rain, up to 39 million tonnes of rainwater, which then gets contaminated with sewage, gets discharged into the tidal Thames, which is clearly unacceptable. The Thames Tideway Tunnel will eliminate the vast majority of that. Clearly, with extreme weather events that are increasing, we need to now look at that before that comes into operation over the next two and a half years.

When the original analysis was done 15 to 20 years ago, we would have needed a tunnel twice as big. The tunnel is three double decker bus widths in the middle of it, so it would need to be twice as big to reduce it down to zero spills. It is designed to take it from 39 million tonnes down to 2.5 million tonnes.

If I look broadly at our overall sewerage network, both in terms of the network and the treatment works, we are spending £1.2 billion during this regulatory cycle. That breaks down into a number of areas, so—

Q418 **Chair:** That is over five years?

Sarah Bentley: Yes, that is over five years, just in terms of improving the network to meet the capacity and the demand so that we can treat more sewage and rain when we get these inundation events. So, £114 million is going to go to upgrade the capacity at 265 sewage treatment works. Some of that is also then keeping up with population growth. Over the 10-year period, London is due to grow by 480,000 people. It is like moving Manchester into London and there are higher growth rates in the Thames Valley where, over the next period of time, it is like moving Birmingham in. Therefore, we need to invest, one, to meet the capacity, and two, to keep up with growth, and three, to keep up with climate change.

We are also doing a lot in terms of cleaning and maintaining our sewerage network, and I am sure that the Committee will be interested to talk about blockages in due course. As you can see, right the way across the network, billions of pounds to make sure that we keep up with the demands, or actually catch up with the demands, that society growth, population change and climate change are having in terms of the environment.

Q419 **Chair:** Is the Ofwat pricing review mechanism holding back your planned capital investment in treatment?

Sarah Bentley: Since I joined 12 months ago, I have been accelerating the money that we have received during this regulatory period. As I said, quite clearly when I started, I went out, I listened to our customers, I listened to environmental groups. I have talked to Members of this House and, indeed, talked to members of this Committee. It is clear that we have a broad range of performance metrics that we need to change.

Thames's performance is unacceptable. Our customers find it unacceptable to contact us. Our aging infrastructure, whether that is on the waterside with leakage or the sewerage network in terms of the capacity we are treating, needs addressing.

We have £10.5 billion—that includes an additional £300 million that I have secured from our shareholders to invest over this current regulatory cycle—and I am doing what I can to accelerate that to make sure that the impacts and benefits of that on the environment are felt as quickly as possible, because I am impatient for change.

As we look more broadly around continued demands, both in terms of the network and surface water—I am sure we will talk about flooding at some point as well—then we need to have a look more broadly, and things like the SPS are a great opportunity to clarify the environmental ambition and we need to make sure we invest sensibly on behalf of customers and the environment.

Q420 **Chair:** Did Thames submit applications for the green recovery challenge fund this spring?

Sarah Bentley: Yes, we did submit. I would love to have submitted more. As I said, I started last September and the green recovery submissions were due just a few months afterwards, and unfortunately some of the information, such as the blue-green infrastructure, we are still learning and are still putting these monitors in place to understand how we want to spend the money. I have had discussions with both the Environment Agency and Ofwat to say, "If we can accelerate the amount of money we are spending, can we continue to talk about green recovery?" because it is good for the environment and it is good for our jobs as well.

Q421 **Chair:** How much did you get out of the green recovery challenge fund?

Sarah Bentley: We got £100 million to accelerate smart meters, to make sure that we bring forward effectively the next regulatory cycle investment into this AMP. That was something that was more measurable, more understood, easier to bring forward, whereas on some of the discovery that we are doing regarding the sewage treatment and the best way to deal with it, I would love to switch off and block up all overflows at the moment but, as you know, in some of the flooded areas that is going to back up into the environment and cause—

Q422 **Chair:** Are those smart meters at the consumer level or at plant level, so that you understand what is happening more within your facilities?

Sarah Bentley: For the green recovery challenge fund, the smart meters are at the consumer level. We already have full monitoring of all of our storm overflows, so all of our EDMs, as you referred to earlier, are installed.

Q423 **Chair:** We will come on to that. Thank you. Ian, we just touched on

smart meters and consumers paying for their water use by the litre, which is the way that is going. Would you be willing to see a payment by litre of sewage spilt by your company as a way of helping to focus the minds of the board on this issue?

Ian McAulay: It is an interesting concept. I haven't quite looked at it in that exact way, but I think that, on looking at how spills are being created, the flows and what the constituent flows are, one of the difficulties I might have in terms of taking that through is that we have done quite a lot of work on CSOs by necessity over the years, so we have clear identification of what is coming out when we do spill. In most of our spills the constituents are 97.1%—it sounds terribly precise but round about 97% is rainwater, surface water, so not sewage. Therefore, you would be paying for the penalty of conveying surface water.

Where I think we want to focus our efforts is: how do we provide best value to our customers by trying to separate that out? I should perhaps say that I am a civil engineer, an environmental engineer and a fellow of ICE, so it is an area I have looked at over many years. To try to eliminate all CSO sources by building bigger storage has several consequences for customers. It is expensive. It increases carbon footprint enormously, and ultimately we finished up taking that very diluted water into treatment works and treating it, which is an enormous carbon footprint and, effectively, we add more chemicals and more power to dilute water.

It is an interesting concept for me, Chair. I think it is one we need to be looking at. I think we also need to be looking at the holistic—

Q424 **Chair:** You are looking at it or you would be prepared to look at it?

Ian McAulay: Yes, I think we would do.

Q425 **Chair:** We will get into this but you just paid a colossal fine for a challenge, and one of the issues in my mind is how the boards of each of your companies react when there is a pollution incident. Historically, the fines imposed if the Environment Agency take you to court are of a level of less than any of your salaries and, therefore, do not probably feature much in the board papers.

I think we will come back to this but I will not focus it on you, Ian. Heidi, do you think that there is a better way of focusing the board's attention on the significance of this issue, given the public awareness that has been generated over the last couple of years and the absolute demand of the public to stop sewage being spilt into our waterways? They are the arteries of nature and they are being killed, not entirely by what your companies are doing but significantly so.

Heidi Mottram: I think I can reassure the Committee that our board takes this incredibly seriously and has for many years. In fact, we report on this regularly in our board papers and we take a zero-tolerance approach. I am pleased that, in the last three to four years, we have seen a 61% reduction in the number of pollutions as a result of a multifaceted

plan that has seen activities right the way across our network and has now got us into a leading position in terms of pollution management. Every pollution, as far as we are concerned, is an absolute disaster and we will continue to push those numbers down.

We have 30,000 kilometres of network and we are now averaging around 40 to 45 pollutions in a year. It is very challenging to get to that level but we will continue to drive that even further down. We talk about this regularly at our board meetings. Our board wants to see that get as low as we possibly can to see how we can drive that even further forward.

I can assure you that I am personally challenged to do that within the performance regimes that I am tasked with, and the way that I drive the company in terms of the targets and goals that I set the company as well. This is front and centre, along with other important issues, of course, like customer service and safety. There are a number of things that we need to deliver, but protection of the environment is at the heart of what we do.

Q426 **Chair:** Are there any other incentives to improve the infrastructure that you are responsible for to help drive down the spillage instance?

Heidi Mottram: The way that the regulatory system works is we put forward plans, as you know, every five years. We try to make arguments that, "We need to move this forward".

You asked a question a moment ago about the regulatory regime. In this particular regulatory period, we decided that we would like to try to go further. The issue is definitely about surface water coming into our systems. Typically, they don't spill when there is no rain or surface water coming in. We have done some brilliant schemes in partnership. We have an award-winning partnership in the north-east called the Northumbria Integrated Drainage Partnership. We work with local authorities, with the EA and with drainage boards.

We have identified a number of schemes to take out surface water and prevent flooding. We wanted to go proactively and we put in a request in that plan for an £80 million programme to carry that on. Unfortunately, because of the way that Ofwat's methodology currently works, it was not successful because what Ofwat is doing is looking backwards to see what efficient spend looks like. We were arguing, "But the climate is changing. We need to be more proactive. We know that we are getting more intense rainfall", but their methodology was based on looking backwards. So, we challenged that. You might be aware that we went to the CMA.

We then ended up having a different argument with colleagues at the CMA, which was around: how did this link to the incentive regime going forward? Our customers supported the scheme—91% of our customers supported the scheme and our stakeholders supported the scheme. It is very frustrating that we have not been able to get on the front foot but we will go again.

We are still doing the work in as much as we can in this period but I think we do have to recognise now—I know that the EA is looking at proactive flood prevention, so I think that the water industry should also be funded for proactive prevention as well. This is what we all want, isn't it? It is what our customers want, so that is where we need to push next.

Chair: Thank you. We are going to open it up to other colleagues now and we are going to go first to Robert Goodwill who is joining us from Yorkshire.

Q427 **Mr Goodwill:** Could I turn to Ian McAulay from Southern Water to start with? I am guessing that when you took over the company in 2017 the single biggest headache that you inherited was the impending legal action for 6,971 illegal spills, which resulted in fines of initially £126 million, followed by a further fine of, I think, £90 million for discharging between 16 billion and 21 billion litres of raw sewage. Incidentally, if you do the maths it is round about half a pence a litre, Philip, if you are working out how much you would pay per litre.

When you arrived there and you discovered that these enormous quantities of untreated sewage had been discharged into the seas off north Kent and Hampshire illegally, did you discover that this was done deliberately by the company to avoid paying penalties or the costs of upgrading and maintaining infrastructure? Was it a deliberate act within the company?

Ian McAulay: First of all, thank you for bringing it up because it was something that I would want to be discussing with the Committee. As you said, when I arrived it was a shock. As I said, I am a civil and environmental engineer. This is not how it should be done and it still makes me angry to this day.

Obviously, with court cases, I am limited in some of the things I can say. There is still an existing investigation. There were some deliberate acts, and that is one of the reasons why I made the recommendation to the board: self-reporting into the regulators working with them but very clear with the board that, when it did come to court, which was this year, that we would plead guilty to all charges because we were. It is as simple as that and, as I say, you can probably tell it makes me extremely angry today.

What did we do about it? I have spent a fairly significant amount of my time dealing with court cases, which I prefer not to have to, but also putting in place proper lines of defence, proper measurement, which I think is germane to this inquiry. A lot of the discussions in previous sessions have all reached the point of: if it matters, measure it because you can take proper action. We have made very sure that we now measure all of our storm flows. We are at 98% with EDMs. We have a three lines of defence model, a director of risk and compliance. We have independent audit as well to make sure that we cannot do it again. The

behaviours were inexcusable. I will not even try to excuse them as a CEO.

Q428 **Mr Goodwill:** Did heads roll? Were individuals identified and dismissed?

Ian McAulay: Yes.

Q429 **Mr Goodwill:** I am guessing there were some cultural issues within the company that had allowed that to happen. Have you managed to address some of those problems and fixed them as far as you can?

Ian McAulay: I believe so. I think all of our regulators—and they have told me in the last week that one of the key things in the report, if you read the Environment Agency's report, it would say there has been a transformation of culture. That was reflected in a discussion earlier this week with the EA. We have focused very hard on that; customer and environment come first. That comes from the board down. It comes through me.

We are told the difference in our staff, who are open and transparent now, and we have the highest level of self-reporting now. We used to have the lowest. We self-report to a level that no one had done before in our company and we have made sure that that is a virtue as well. So, I would say yes, we have made a very, very significant change.

Q430 **Mr Goodwill:** When you said earlier that some of these were deliberate acts, were these done in a calculated way in so far as, "It is cheaper to risk being fined. We can probably hide what we are doing, rather than invest in the infrastructure that we need to upgrade, sewage treatment works" for example? Was it something that was forced upon under-pressure people who may have tried to justify their action by saying they had no alternative? Or was it almost a calculated risk within the industry, not just with your company, that, "You can probably get away with it and it is cheaper not to spend the money"?

Ian McAulay: I don't believe it was the latter, which is good I believe. There was a small number of people involved. To this day I still cannot truly explain. They were not making significant financial gain themselves. It was found through the investigations. It was kept from the board as well, so it stopped at a certain level. There was a strange almost gaming type approach with a small number of people who then unduly influenced and forced other people to do things that they should not be doing, so yes, we have had to take them out. We have had to put in place things like "Speak Up" to allow people to have anonymous ways of contacting through. That has been very successful.

As I say, to this day I cannot fully get to the bottom of why certain people did certain things, other than that they were gaming to some degree.

Q431 **Dr Offord:** This went all through the organisation, didn't it?

Ian McAulay: No, to be fair it didn't actually.

Dr Offord: That is incorrect, is it?

Ian McAulay: A relatively small number of people.

Q432 **Dr Offord:** The biggest inquiry by the Environment Agency found that there was an institutionalised culture of cover up. Not only were people from the Environment Agency prevented from entering water treatment works; you also deliberately hid documents in locked cupboards. And that extended to not only people who were operatives but all the way up to a senior level of legal representatives of your organisation. That went up as high as the board, so please do not say that it did not happen.

Ian McAulay: I am under no circumstances saying it did not happen. What I am saying is there were a small number of people who directed people to do things. There was an instruction given to some members of staff under duress not to hand over documents when an inspection occurred. That was an erroneous message. I wasn't here so it is very difficult for me to go into the exact detail of it. It was not acceptable. That is very, very clear.

Q433 **Mr Goodwill:** Just to follow on from that, these people who were dismissed, have they popped up working for other water companies around the country or were they named and shamed in a way that would render them impossible to employ elsewhere in the industry?

Ian McAulay: I am not aware of those people working for other companies.

Q434 **Mr Goodwill:** Thanks very much. Can your customers be confident, if they are using the rivers or swimming in the sea, that your company is no longer illegally polluting rivers as of today?

Ian McAulay: As I said, we have the highest level of self-reporting, so if we have a pollution event, we have developed a system called Beachbuoy. Any spill of any duration is reported and is in the public domain. It is available on our website and we have a level of self-reporting above 90% now to the Environment Agency, so I believe that gives confidence to our staff and we have a huge amount of reporting from our staff. We have done significant training across everyone for pollution spotting.

That is technical stuff, office stuff as well, so if they are out and about they can see it as well.

Q435 **Mr Goodwill:** How high up the organisation do you believe the rot had reached?

Ian McAulay: A person in a position one level below myself was one of the people that was dismissed.

Q436 **Mr Goodwill:** Understood. Could I turn to Sarah Bentley now from Thames? Are you aware that Thames has had similar permit breaches?

Sarah Bentley: We have a number of sites that are struggling to treat their full flow before we end up in a storm event, and we have been working with the Environment Agency for some time before my arrival with a programme called Go to Green. This programme is to increase the treatment capacity at a number of sites to ensure that we meet those compliance permits.

Q437 **Mr Goodwill:** Do they tend to be in areas of older housing where you are more likely to get top water mixed with the foul water?

Sarah Bentley: Typically, with all of the storm breaches, there are two different aspects that cause us challenges: either surface water through extreme rainfall, as you referred to, or because of the chalk and lime geology throughout the Thames patch, we suffer from very high groundwater levels, which over the course of the last 12 months have been particularly high.

Some of the public documents, and particularly the work that has been done, helpfully by Professor Hammond, has identified early spells and dry spells and I think it is worth clarifying. An early spill would be a situation, which he has rightly called out, where we have some sites that are struggling to cope to treat their full flow in heavy weather rainfall events or, indeed, high groundwater events before they storm.

That can cause what is called dry spilling, so the early spill is if we cannot treat the full flow and then the dry spilling is when there has not been a rainfall event either on the day or the day before a spill event occurs. Typically, that is because surface water or groundwater is infiltrating, inundating the network, and obviously a lot of the sewerage network, as you rightly say, is old. It is gravity fed and water finds its way to the lowest point of that gravity network and inundates the network.

If I gave you an example, in Chesham the beautiful River Chess is one of our precious chalk streams in our area. Typically, the site is geared to deal with 240 litres per second. When we have a rainfall event or, indeed, high groundwater levels, so when the soil is saturated flows can reach 300 litres per second for a really prolonged period of time.

The amazing guys and girls who work at the Chesham sewage treatment works increase the treatment works capacity—squeeze it to its limit from 240 to 260 litres per second—but obviously they cannot keep up with the 300 litres per second that is inundating the site from these high groundwater levels. It is a bit of a mix in terms of some of the causes of these spill events but actually understanding what causes them and making sure that the £1.2 billion that we are spending on just the treatment works will be directed to the right problems.

Q438 **Chair:** Thank you. Before I bring in Matthew, who knows more about Thames Water than he does about Southern, Ian, within the last week there have been two significant spillage events affecting beaches that have taken place in your patch. There was the Broadstairs incident, which

I think shut 14 beaches for swimming, so it obviously had a very wide-ranging implication. How quickly did your monitoring of that facility identify the scale of the problem and how can you account for the fact that so many areas were affected? It suggests that it had been spilling for a long time and was undetected.

Ian McAulay: Hopefully, this demonstrates the change and the readiness. That malfunction, which was an electrical trip that activated the breakers, which meant that the pumps failed, was within the control centre. We have invested significantly in telemetry at centralised control. That was done within a minute. It was repaired in under two hours at a time when we had a very significant rainfall event from the night before, and we had enormous stress on our teams. The spill was for about an hour and 15 minutes, an hour and 20 minutes. That would spill several thousand cubic metres into Joss Bay through the short outfall. That went out on the tide. That gives the chance for it to disperse round through the tidal current, so there was a precautionary measure looking at the—and people were very unsure of the wind direction, for example. We had beach walk teams every single day on all 14 beaches for a period of six days as a commitment.

We did have some washup back on Joss Bay but the other beaches, fortunately, have not seen any debris arriving on them, as I understand it. So, the response time was better but still not acceptable.

Q439 **Chair:** Last Friday there was an incident in which the Environment Agency were called out by residents at beaches around Southsea and Hayling Island complaining of evidence of sewage spill, and your response from Southern Water was that there has been no fault in any of your assets. So how do your account for that?

Ian McAulay: There is still work ongoing at the present moment in time looking for that. It has been done with the EA. It has been clarified that from of the surface assets there does not appear to have been any spill. However, there is definitely an odour, so we have employed independent environmental assessors, who have been out on RIBs for the last two or three days trying to identify sources. I checked just before I came in. That still has not been identified, so that is ongoing.

Q440 **Chair:** They are not aware of any leaks?

Ian McAulay: We are aware that the key area to look now is through the marshes to try to find if there is anything in there. There is nothing in the above ground assets and the readily visible means that we can see. That has been done by ourselves and the EA and an independent environmental assessor, and they will continue while we try to get to the bottom of that one.

Q441 **Chair:** I have seen a leak, not in your area but in Liv's area, a few metres above the Severn in a buried pipe, which was probably 60 cm or 80 cm in diameter and it was only discovered as a result of building works going on. But it had clearly been leading for some considerable

period of time, producing huge volumes. It is basically taking the Telford—I do not know if you know the site. It is the Telford outfall across from Coalport. If they had not been doing building work it would not have been discovered. At one level that shows the scale of material that, if there is a leak, can be spewed into our waterways. It also suggests that the asset quality is ancient and is prone to leak, even with big pipes—Telford is a new town; it has not been there for that long—and also that checking systems are inadequate, that there is no system that you can send down your pipes to identify leaks. Do you have such a thing?

Liv Garfield: Yes, good question. One of the things that I think everybody is clear on doing is to get more monitoring. One of the things that we are doing is putting 44,000 monitors on the sewers, so it is like having 44,000 eyes and ears across the sewer network. We are putting in 11,000 a year for the next four years. We have put the first couple of thousand in and it will give us the eyes and ears that we need. I think it is one of the things that globally people have made good progress on—monitors in water, clean water—because if you think about it, clean water has nothing else to catch on it, so having early sewer monitoring has been much more advanced innovation-wise in clean water.

The great news is that we have scoured the world and managed to find some very good monitors. The first 1,200 have worked, hence we are ramping up and doing 10,000 a year for the next four years. The good news is certainly by the end of this five-year period, we will have these 44,000 eyes and ears. I suspect the answer will end up being probably a couple of hundred thousand over the course of the next five to 10 years thereafter, but I think you are right, we need to make sure that can't ever occur.

Q442 **Chair:** Are these identifying leaks specifically?

Liv Garfield: They would identify a leak, as well as other things. What they do—think of them as eyes and ears, and I use that description deliberately because they are able to capture a range of data, including for certain they hear and listen to any change. That is how you pick up water leaks, as acoustic monitoring is the most common way we pick that up. These are the equivalent of a waste, but effectively they will also predict if a blockage is going to happen, so they help you on three levels. First is they help you with a leak; secondly, they help if you have a blockage building up; and the third is they give you insight in data on flow, which is one of the other things that we are all desperate to see more of. Yes, they are super-clever.

Q443 **Dr Offord:** In your previous response, Ms Bentley, you raised the research by Professor Peter Hammond. He says there could be up to 20 times the number of permit breaches being identified and reported. Given that we know that there was fraud at Southern Water and it did not emerge of the misreporting that was going on and the flagrant breaches, how can you reassure us that the same is not happening at Thames?

Sarah Bentley: There are two parts to that. First, I think the work by Professor Hammond is excellent. I have spent a lot of my career in AI and data and the inferencing, so on the insight that he has been able to glean, I have written to him and I would love to collaborate with him. We have similar work going on to take the information that we have from our monitors, but the challenge is that it is inference at the moment.[1] What I want to make sure is that we have accurate information. Currently we have EDMs—event duration monitors—on all of our permitted storm outflows. What we really need to get is flow monitors, so we are installing 250 flow monitors within our works so that we can understand these early spills and be very clear where we stand in terms of permitting.

More broadly, when you talk about the situation that Ian discovered when he went into Southern, I am very mindful of that. I have been quite transparent since I joined 12 months ago that we have a broad turnaround programme that is beyond just the issue that we are discussing today around river quality, but our customer performance isn't good enough; our leakage isn't good enough. I knew when I came in, like you, that Thames's performance is the round is unacceptable. This is a turnaround situation and that starts with a new leadership team. I have appointed eight new executives over the last 12 months, a new plan, a set of new shareholders that are supportive of that plan, but I am also realistic that this isn't going to happen overnight. We have laid out plans over the next eight years and that starts with the people and it starts with the culture and an environment where people can speak the truth.

Q444 **Dr Offord:** While those are warm words, can you provide us with some evidence today that you are not breaching your permits?

Sarah Bentley: When we talk about the flow permits, we have sites that are struggling to cope with treating their full flow. That is something that Peter has pointed out, but transparently it is something that we have been discussing with the Environment Agency predating my arrival. Some of the works that we talked about that are referred in Peter's work don't treat their full flow before they get into storm conditions. I gave the example of Chesham sewage treatment works and you have read about

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[1] Sarah Bentley has subsequently contacted the Committee to request the following factual clarification because she acknowledges that her repeated and subsequently insufficiently clarificatory responses to three questions may have given an incorrect impression to the Committee:

'In my replies to Q443, 445 and 448 I stated twice incorrectly that Professor Hammond had used AI techniques and drawn inferences from data provided by Thames Water. I also may have given the impression, upon being further pressed on this point, that Professor Hammond's work constituted an extrapolation of the data which TWUL had provided. This was also incorrect. I wish to apologise to Professor Hammond and make it clear that I understand that his excellent work used real data supplied direct by Thames Water and the Environment Agency in order to identify 735 spills from the company's assets, without the use of machine learning, AI or other means of inferring conclusions from the data.'

Mogden and the challenges that Mogden has. That is permitted to treat 1,064,000,000 litres of sewage before it storms and it struggles to do that on very wet days.

If we go back to the two days last October, 3 and 4 October 2020, we were inundated. I think they were the wettest days on record and we struggled to treat both the permitted amount, but also just struggled to treat the sewage. I think on that day there was enough rainfall to fill Loch Ness. In order to deal with that at Mogden, we have eight storm tanks at the moment that currently hold about 40 Olympic-sized swimming pools of storm water contaminated with sewage. We would have needed either another treatment works the same size as Mogden treating another 1 billion litres or we would have needed 150 more storm tanks.

Some of the challenges that we have are quite significant in terms of the scale. Yes, we have ones that struggle to cope, and yes, we are dealing with those with the £114 million that we are investing to upgrade the capacity at 265 of our works.

Q445 **Dr Offord:** But my question is: what evidence do you have to disprove what Professor Hammond is saying, that you are breaching your permits by a significant amount and underreporting when you do breach?

Sarah Bentley: As I mentioned before, the work that Peter has done is very much focused on the inferring what could be occurring using artificial intelligence. The reality is we do not have the information about what is going on, which is why he is inferring from the data that is available. What my focus has been on since I arrived is making sure that we do have accurate data available so that we all know what is going on, and more importantly, publishing that. By the end of the next year, I want to be able to publish all of our EDM data so that is fully transparent, not just for us so that we can act on it operationally, but for other people to hold us to account.

Q446 **Dr Offord:** So it would be a fair and accurate assessment to say we simply don't know?

Sarah Bentley: That is accurate.

Q447 **Dr Matthew Offord:** When do you expect Thames Water to be 100% compliant?

Sarah Bentley: The Go to Green project I have accelerated. At the moment we are looking at 128. We were looking at eight and over the last 12 months we have accelerated that to 128 of these sorts of high-spilling outflows. But the EDM monitors don't show us the flow to full treatment. That information will come from these additional 250 flow monitors that we are installing over the course of this regulatory period, and there will be a few that will go into the next regulatory period, but I am currently looking to see what, if anything, can be done to accelerate that forward. Obviously, it needs to be timed with the additional capacity

that we are investing in, so we are building those in as we are building the additional capacity.

Q448 **Chair:** Can I pick up one point you said? You said that Professor Hammond has been inferring from information that is available. Might he not say he is using the information that is there and he is not inferring anything, and that he is identifying when spills have occurred and had an impact on water quality, which may not be being picked up by the monitoring equipment that you are using?

Sarah Bentley: Sorry, I should have been clearer in terms of my analytical language. What I understand Professor Hammond to be doing is taking the data that is available at some sites and extrapolating that throughout our sewage treatment work estate. We simply don't have, as I said to Dr Offord, the information available today to know with certainty, so he is using using artificial intelligence techniques, but this is where I am desperately keen for our teams, who are analysing this, to work with him so that we work together to get the information. I passionately want to reduce the impact that we have on the environment and we are only going to do that with good information, which is what I am working hard to have.

Q449 **Chair:** But the evidence that we have had in this inquiry is that all of you—the whole industry—is susceptible to the same challenge, which is that you are extremely reluctant to provide the information that you have to inquiries from members of the public and particularly from campaigners, who are trying to understand the nature of the water quality that they are trying to use or enjoy.

Liv Garfield: Can I comment on that?

Chair: Yes, and Severn Trent are as bad as the rest in this department.

Liv Garfield: I just checked before I came in and all of that data is available on our website. It has been live for the last few months. We built a website specifically to make sure that every piece of data is transparently available. I know it was a fair piece of feedback a while ago, and that is fair, but following the feedback we did say as a promise to you a year ago we would create a website and make it available. It is already available on a website. Why don't I take the action after this just to circulate the link around to close that off? But I hear the feedback and we have solved that, so it is readily available for everybody.

Q450 **Chair:** Does that mean that you will be publishing responses to environment information requests?

Liv Garfield: The key ask was, "Let me have the data as you have it, so that I have the same eyes and ears as you have". That is what we have done, exactly that, so anybody can see the same data that I have on exactly the same information. That is what is live on the website. That is what we have done. The ask to date has been that.

Q451 **Chair:** So the days when you require a freedom of information request to get an analysis out of you are over as far as Severn Trent is concerned?

Liv Garfield: That is exactly what I believe. I don't want to be receiving freedom of information requests either and then have my teams poring all over, providing data to somebody. I want them to be getting on and getting river quality to be amazing, so we decided to make all that information available, then it is for anybody who would like to look at it to be able to access that data.

Chair: Is anybody else in a position to say the same thing?

Ian McAulay: We feel like we are in the same place, Chair. We committed to the highest level of transparency. We publish all of our spill data on our website and have done for some time. We went further with Beachbuoy as well, to try to give near real-time information on spills to people.

Chair: I am sure, having said that on the record, there will be people putting that to the test.

Q452 **Dr Offord:** Can I just make the point, though, that it depends what you are testing for as well? You don't test for ammonia, phosphate, nitrate or antimicrobial bacteria.

Liv Garfield: The request that came through was, first of all, "Do you have anything, any access to data that we don't have?" and we said, "You are right. We are on the back foot and we are wrong. We should make sure we all have that information". That is what we have done.

The second thing that we also do is we try to be really clear and open with quite a lot of data. What we have tried to do—again, I can send you a link to the central website—is say we don't want to look like we are hiding. There is almost that sense of you look guilty if you are hiding, so we tried to first of all give the pure data. What we then tried to do is to work with groups and to say, "We are as passionate as the next person about river quality. Let's get after that". We have done a series of very interesting studies on your basis that says, "Okay, let's go into it".

Q453 **Dr Offord:** I understand that, but you don't test for what people want to know about. The bathing water directive doesn't allow it.

Liv Garfield: We don't own river quality testing. The Environment Agency owns it, so the Environment Agency, quite rightly, publishes all that for everybody across the sector. What we try to do though is take interesting reports and make those available. There was an interesting one from Natural England just this week on the River Clun. What we do try to do is point to that and try to help people out a little bit with those things. But you are right, our responsibility as a water company is to discharge very good high-quality effluent, not to monitor rivers across the piece.

Q454 **Dr Offord:** That is why it rings hollow when I hear "excellent water

bathing quality", because it is just simply not.

Liv Garfield: To be very clear, what I have said consistently is that I want us, Severn Trent, to do our part. I am confident. We have a 25-year environment plan. On that environment plan for 25 years it lists out the to-do list, you could argue, for each and every company and each and every sector. I want us to be complete on our to do list by 2030, to have done all of our RNAGs so that we can wake up in 2030 knowing that Severn Trent has done everything on its to-do list.

I would love that to also coincide with the day when river quality in the UK is excellent, but the reality is we have a lot of other sectors with a lot larger impact. We need to work collectively across the piece to be able to wake up and have that day, but that is the day I want in the same sense. In the meantime, I am going to accelerate and invest as much as possible to make sure that Severn Trent's duties are done. That is the first phase, I think: some people doing their part of the to-do list.

Chair: Thank you. I am afraid we must accelerate the questioning now.

Dr Offord: I understand. That's fine.

Chair: Thank you, Matthew. Over to Barry Gardiner, who is very good at asking punchy, short questions.

Q455 **Barry Gardiner:** That is the first time that has ever been said. Before that, Chair, can I just ask those who were silent about the publishing of data, the three of you, will you commit to the same transparency that Severn Trent and Southern Water claim to have already committed to?

Sarah Bentley: Yes.

Susan Davy: Yes, it already is.

Barry Gardiner: Already is?

Sarah Bentley: As I mentioned in my reply to Dr Offord, we are in the process of publishing the data and fully commit to it by the end of next year. We have a river water quality trial—back to Dr Offord's point—which is looking at other water quality, not just flow, but the flow data from the EDMs. We are trying to work out what is useful.

Barry Gardiner: All of that will be published, yes?

Sarah Bentley: All of that will be published.

Susan Davy: Yes. In terms of our bathing waters, we share all that information on a real-time basis with an organisation, Surfers Against Sewage, and it uses that to inform. We used to publish it ourselves, but we felt it better to co-ordinate with another organisation so that the public had one place to go for that information.

In terms of the information from our inland river monitors, then yes, we are looking to publish that. We already publish it historically, then we are

looking to see what we can do to publish that in real time, but yes, we will commit to doing that.

Q456 **Barry Gardiner:** It would certainly make sense if it was a sort of standard way in which all of you published the information and that you had all of the information available there, so it would be very good if that were a commitment.

Can I follow up with you, Ms Davy? The EA has given South West Water a two-star rating now. I think that is the best rating it has had in the past 10 years. I know you only came into the job in July 2020, but before that, I think for five years you were the chief financial officer of Pennon. Why has the company simply failed to improve performance during that entire period?

Susan Davy: The first thing to say is that I am incredibly disappointed, and the board is, too, and it is unacceptable in terms of our pollution performance. Just to be very clear, in terms of the overall environment assessment that takes place, there are six aspects that are looked at. The two aspects that we are failing is around our pollution performance. Last year, in 2020, we had 225 pollution incidents in our region, which is unacceptable.

Q457 **Barry Gardiner:** Sorry, I am not seeking to have an analysis of what the situation is. I am asking you why it hasn't improved over the 10 years. It seems incredible that during that entire period, actions that the board you would imagine would have taken have not materialised in any improvement in the quality in the service.

Susan Davy: Maybe if I can reassure you and the Committee that this year, 2021, we have made a number of changes. We have strengthened our round-the-clock response to what is happening out there in the region. We have identified over 210 hotspots that we are now investing in and we are regularly working with our teams. I hold a call with the teams on a daily basis and that is seven days a week, every day since I took the role, to understand what is happening in our region, what is happening in that work. I am pleased to say that the number of pollution incidents has reduced in this calendar year so far. We have reduced by over 60% the number of pollution incidents now. It is still unacceptable that there are any pollution incidents in our region, and as a board we need to make sure that we can support the rest of the business to achieve that. My role is to lead on that and to make sure that is happening.

Q458 **Barry Gardiner:** I assume that when you decided on the things that you wanted to implement this year, you looked back over the previous decade and you said, "What went wrong? Why did we fail previously?" That of course is my question: why did the company fail over that period of time to get it right? I am glad you are doing what you are doing. The homework in the future we hope will be marked more favourably, but the question is unless you have analysed the failure, it is probably not correct to say that it is going to be different in the future. You need to know what

went wrong in order to know how to fix it.

Susan Davy: There are a couple of key things to say. I talked about round-the-clock in terms of our operational teams and our supply chains, so making sure that there is that 24/7 resource available, so that is one thing that we have done differently and wasn't there before. We have made sure that that is happening, made sure that we are using data and analytics to analyse where we have repeated issues. Those are our hotspots that I touched on, so we can target where to invest.

Then we have also been collaborating with a number of colleagues here today to understand where others are performing well, what we can learn and making sure that we are taking some of that learning into what we are doing, so this idea of getting the analysis of data that we have and using some of the technology and AI to predict where there may be issues. Again, some of that technology is helping us reduce where we are.

The last thing is we have been working together—and I speak to the Environment Agency very regularly and have sessions and meetings with it very regularly—on how we make sure, all the way through the organisation but starting with myself and the management team, that culturally we are all focused on this and perhaps the way we have been talking about it in the business needs to change. We have been likening it to—in our business the health and safety of our employees is absolutely paramount, and we have been talking about the environment and the health and safety of the environment in the same way now, so culturally we have a change programme that is helping us think about that. Those are all things that we are changing, identifying what was not there before.

Q459 **Barry Gardiner:** In terms of personnel, has your board completely changed? Have senior directors changed? It is difficult to envisage that what you are saying is now going to be transformational unless the people—because you talked about the culture—themselves have been changed. Has there been a clear-out?

Susan Davy: There has been a change at Pennon and South West Water through various strategy reviews that we have been through over the last 18 months, but in terms of the wastewater team, yes, there has been a change in terms of the management team and who is working in that management team now.

Q460 **Barry Gardiner:** Ian, you said that you were not aware of any of the disgraced former employees working for other water companies. Are any of the witnesses aware of any of the people who previously worked for Southern Water now working for them?

Susan Davy: They don't work for me.

Liv Garfield: We have had individuals who have been at Southern Water, but they are not, that I am aware, involved in any investigation.

Sarah Bentley: Clearly, we have employees who were at Southern Water, but I am not aware that they were involved in the investigation.

Heidi Mottram: No.

Q461 **Barry Gardiner:** Will you cross-check with each other whether any of the people that left under a cloud are now working for the two organisations that said they do have Southern Water former employees there?

Ian McAulay: Can I perhaps respond?

Barry Gardiner: Yes, of course.

Ian McAulay: One of the things I should have said, and perhaps to Dr Offord as well, once we had discovered and pled guilty to all the charges, we went and briefed all the other companies as well as to where the failures were, where the systems were not appropriate, where the people were not appropriate, so there was a briefing given out to all the other companies just to make sure.

Barry Gardiner: Perhaps without names, though.

Ian McAulay: Yes. At that time that was a live case, so we couldn't give that.

Q462 **Barry Gardiner:** Indeed. So references and the taking up of references will have been very important and it will be important to know whether you whitewashed the references that you gave to anybody or whether they were full and frank.

Ms Mottram, your record as a company is qualitatively different from that of South West Water. How did you transform your company's performance? Because 10 years ago it also had a two-star rating and you have now increased to a regular four. I think it dipped to three at one stage, but then back up to four stars. What were the key elements of that transformation?

Heidi Mottram: We have a goal within the business to set our targets at industry-leading or on occasion outside of the industry to set the very highest standards for us. That is right the way across the board. It is environmental performance, but it is also customer service, employee engagement, safety. This is the culture that exists within the business. Now, obviously that is very challenging and I would love to be able to give you a very simple answer about how we achieved that, because it is multifaceted. One thing I do know is the situation in each company will be really quite different—the geography that they have or the scenarios they have or the asset lives et cetera—so the situations may not be directly comparable, but we set a very clear goal.

Our goal is to be four star and we have a very clear understanding all the way through the business of a line of sight for each individual about how their work and their goals contribute to that and we empower people to go after it. That is what they want to do; they are passionate about

delivering that service. It is tough. These goals and standards to get to four star means you are on it every single day, every single hour of every day, but I am pleased to say that we have been able to achieve that, as you say, consistently, with a couple of little blips. We have to just be across absolutely everything, all of the complex systems and drive, drive, drive.

Q463 **Barry Gardiner:** Yes, and I think it is your point about each region having different environmental challenges to deal with, but none the less it is the cultural changes within the organisation that I think can broadly be a lesson.

Just an observation: when you were responding to the Chair at the beginning about swimming and you replied about more of your customers wanting to know about canoeing, I just find that any time I go canoeing I do end up swimming, so—

Heidi Mottram: Yes, I think we can identify with that.

Barry Gardiner: They do still have an interest, the canoeists.

Heidi Mottram: Absolutely.

Q464 **Barry Gardiner:** Does the Environment Agency rating system provide, as you see it, an adequate incentive to improve your performance?

Heidi Mottram: Is that a question to me?

Barry Gardiner: To anybody who wishes to answer, but yes, by all means take it first.

Heidi Mottram: Yes, I think it does. It is across a number of different factors of environmental performance. Over time, those standards and goals have been increased. We talk regularly. The Environment Agency consults the industry about how that regime should work and I think it is good that we collaborate in that way and we understand the very high standards. I think there is a lot of passion and care in the water industry to hit these standards, so I think yes, it does work and we do work hard to get that rating.

Barry Gardiner: Is that the general view?

Liv Garfield: The one thing we have added before now is we have said that we wonder whether there should be something extra. If you are at the very top of your game, often you will have carrot and stick, so there is a very strong stick; I think that is clear. Our previous on-record consultations say we believe there should be a carrot if you are consistently four stars. We have been for many years. Is there a carrot and would that be appropriate? That is on an on-record statement, so if I did not say it, it would be different from what I normally say, so I am going to be consistent with my normal response to that.

Q465 **Barry Gardiner:** Ms Bentley, Thames Water is rated good by the EA, but you do have the highest number of serious pollution incidents. As we

heard from Dr Offord, in the past there have been prosecutions that have highlighted management failures. I think it is perhaps open to you to impress upon the Committee what you are doing to improve the performance of the company in those areas and, as Dr Offord was suggesting, trust, because certainly I fall under your ambit as well. I have visited Mogden and I know the constraints that you operate under, but I also know the lack of engagement often with local communities, who are trying to redress the problems of foul water sewage flooding in their areas. It is not always a great picture that we get. I think particularly of the flood management group in Brent and Harrow, which has not had the best co-operation from Thames Water in the past. How are you dealing with that volume of incidents and how are you going to restore the public trust if you are not doing that at the local level with the people who are most affected by it?

Sarah Bentley: Yes, I think you raise two very important points, one specifically about pollutions. As Heidi said, we treat that very seriously. Over the last year we have reduced our pollutions, both in terms of our general level of pollutions by 10% and our serious pollutions by 13%. Now, we are still missing our targets, just to be clear. I think it is highly likely, given the backlog of issues that we are dealing with, we are likely to become a two-star company before we get back on the track to be a three-star and four-star. Part of that is that the Environment Agency is rightly stretching these targets around pollution incidents, not just when there is evidence of a pollution, but in these spilling events. We have had a number of those this year and I think it is right that those standards are there.

Heidi was underselling her turnaround plan. She has been incredibly generous to me over the last 12 months around sharing how they have improved their pollutions. We are building in some of the things that she talked about. Yes, it is culture, but there are some very practical things around treating all pollutions to the same level, not just the ones that are apparently serious at the time, because a bit like small leaks can become big leaks, small pollutions can become big pollutions if they are not addressed quickly, which I think gets on to the bigger point.

You have raised it in a number of your questions around culture and I am not necessarily a fan of the word "culture" but I am a big believer in behaviours and values. We need to set very clear standards of the values that we aspire to as a business, but also the behaviours that are acceptable and unacceptable. I think by doing that, I was very clear when I joined the business 12 months ago that I was brought in to turn it around. It was clear that it was a business that was failing and had lost public trust and still has lost public trust, so while I absolutely want to reinforce with the Committee that I am utterly committed to turning the business around, I am not sure that you should believe my words. I am sure that there have been many chief executives—and quite a lot of them in recent years—that probably have said the same thing and have felt as strongly. I need to be judged by my actions, so that is why we have put

in a very root and branch turnaround plan. We have changed the executive team, I have the support of the new shareholders, who haven't taken a dividend in four years and we are absolutely convicted. But the proof, frankly, will be in the pudding.

Q466 **Barry Gardiner:** I will certainly be looking for the proof of that pudding in Thames Waters's commitment to the Brent and Harrow flood working group, so you are on notice.

Sarah Bentley: We look forward to it.

Chair: Thank you, Barry. Now over to Norfolk with Duncan Baker on the monitor.

Q467 **Duncan Baker:** Thank you very much, Chair. To start off, we heard earlier on from Ms Davy that South West discharged sewage some 42,000 times in 2020. That is 115 times per day—not the worst in individual times, but still 115 times per day. What you do have is the highest number of pollution incidents per kilometre of sewer, which understandably is not a record that you would want to have. When do you aim to reduce these incidents to zero and how are you going to go about trying to achieve it?

Susan Davy: Yes, very happy to talk about that. In terms of our position with our pollution numbers, as you said, I talk about the absolute numbers of pollutions, so we had 225 pollutions in 2020 and we have put a full programme in place to reduce the number of those pollution incidents over the coming months and years. Just to give some reassurance to the Committee, so far for 2021—so that is from January up to the period that we are sitting today—we have reduced the number of pollution incidents by some 60%. That is coming down again next year by another half and next year again by another half, so by the end of this regulatory period, we are aiming to be a four-star company and to be absolutely on track.

Now, in terms of your point around pollutions, yes, we would like to aim for zero pollutions, because that is the harm to the environment and we regret those harms to the environment and we need to avoid them. That is what we will be aiming for. Understandably, sometimes things go wrong in our treatment works and in the networks and those things can happen, but our aim will be to target zero, as we do for health and safety for our own employees.

In terms of achieving that, there is obviously an enormous amount of work that we are undertaking. I said in terms of our review for this, we are working now 24/7 with the teams. I undertake sessions every day of the week, seven days a week, and we make sure that we are analysing the root cause of what is happening, looking at where to invest and where we need to do things differently. We talked about and used that "culture" word again, but in terms of our organisation, last year when I came into the role, we relaunched our purpose, "Bringing water to life", and our values about being trusted, collaborative, responsible,

progressive, and that is what we are aiming to do, making sure that we are working throughout the organisation to achieve that. That is our aim, that is the target, to get to zero.

Q468 **Duncan Baker:** Thank you for that. I don't think you answered the question specifically because the question was: when? Is it feasible? Are you going to reduce it to zero? Can you reduce it? When?

Susan Davy: In terms of this regulatory period, which takes us out to 2025, as I said, we were at 225 last year. We are on track to more than halve that in 2021. We are going to be halving that number again in 2022 and halving again in 2023. By the time we get to the end of the regulatory period in 2025, we will be as close to zero as we can get.

Duncan Baker: But not at zero.

Susan Davy: We will be around about 30.

Q469 **Duncan Baker:** Yes, so it is beyond 2025, the expectation to keep halving every year.

Susan Davy: Yes. In terms of our aim, it is to try to get to zero, but in terms of where we might end up, that could be around about 30 for 2025.

Q470 **Duncan Baker:** Let's move on. Sarah Bentley, you said at the very beginning, in your own words—and we will have to look back at what the tape said—that spills are unacceptable and your customers are very concerned about them, or words to that effect. Now, as we know, the EA expects companies to self-report a minimum of 75% of pollution incidents, but your reported incidents were only 63% in 2020. That is not just the lowest of any company; I would say it is the lowest by quite some margin. What has gone so wrong? Are you pretty worried about that? Can you explain why that number is so much lower than everybody else?

Sarah Bentley: Yes, it is unacceptable and it has come off I think in Thames's history—which, as you know, predates my arrival—we were more in line with that 75% and there was a significant drop-off. We have had a look at what the reasons for it were and I think that there were some missed signals that were misunderstood that were being discussed around the time that I arrived. The primary driver is it is just too hard to contact us and that comes to our challenges that we have with customer service more broadly and our ability to respond effectively to customers. We have made improvements in terms of our current year performance, but we will not be back on track this calendar year. But now we have some trajectory in the right direction we fully expect to be back on track, as we have made improvements in the way that we have handled customer contact.

Q471 **Duncan Baker:** Thank you. We will expect that to get a lot more robust in the future then after missed signals. A colleague who is sitting very

close to you has self-reported incidents that have achieved 88%. That is a significant uplift on almost everybody else. In Southern Water, Ian McAulay, how have you managed to do that, and not only do that, but how has it improved since 2019 at such a rate?

Ian McAulay: It is a combination, two or three very key areas where, as I said, we have put a lot of effort into training all staff to be pollution spotters. We have run pollution-spotting courses, so we have far more things reported by our staff, who are perhaps office workers, but perhaps out walking a dog or whatever, so they know what to look for as one of the key things. Because we have put so much effort in the last few years into understanding our asset base—which you could well argue should have been done well before—we are able to identify where the highest proportion of our pollutions come. About 85% come from 20% of the asset base, therefore we are able to home in there.

To what other people have said, we are putting more technology in the ground as well. We are putting 25,000 sensors into the ground to make sure that we get early warning. In those areas where we know we have a higher risk, we are also putting pollution-spotting notices and alert call numbers for members of the public to dial in and there are dedicated response lines.

Again, to the question I was asked about culture, it is explaining to people that it is absolutely the thing we want from you to report a pollution. Then the last thing I would say, which has been very effective, is that we have measured every asset and given a rating on time to pollute to make sure that we understand how little time you have in some assets if they are near to sensitive watercourses. We have embedded a 30-minute response plan across the board as well.

Q472 **Duncan Baker:** Yes, a combination, but the public play an absolutely vital role.

Ian McAulay: They do.

Chair: Thank you, Duncan. To your neighbour in Norfolk, Jerome Mayhew.

Q473 **Jerome Mayhew:** Thanks, Chair. We are coming back to Parliament next week and one of the first Bills to hit the Floor of the House is the Environment Bill. You will all be aware that, among many other good things that the Environment Bill is intending to do, it is going to require water companies to record the volume of spills and monitor water quality up and downstream of outflows. First of all to Ms Garfield, how are you going to do that? Because we have heard about event duration monitors, all they do is they monitor the start time and the stop time; they don't monitor effluent density or flow volumes. What is the kit you are going to use and when are you going to get it into place?

Liv Garfield: Yes, so totally committed to the Environment Bill and totally committed to the ambition around monitoring. As you say, the

current monitors that exist just physically do not do it, so we have to find ones that do. We are doing two things. We have an international scouting unit, so we have international scouts going to three different nations globally, typically nations where strong technology comes out. We do not. We are very good at many things in Britain, but we are not often the very first nation for some of these technology innovations, so we are trying to go and scout other nations that are very good. We are going to try to bring that back. That is number one.

The second thing is that we are going to trial very early on things that look like they might work, because that is the other answer. If things do exist, you have to trial it. We are currently investing £80 million in Mansfield in terms of making Mansfield green. It is part of our commitment as part of the green recovery. We are going to be looking to trial a whole range of different real-time monitors of different types and levels. What we learned when we were choosing our 44,000 sewer sensors is that you probably have to kiss a few frogs. You are going to have to go through the process of finding a few and trialling them in real time. Some will not work: accept it, find another, kiss the next frog. That is what we are doing, effectively using Mansfield as that location to be able to identify that. So total support for it, ongoing. We are not waiting and sitting back for it to arrive; we are trying to lead into the charge that says where it could come from—probably global and it will probably need speedy trialling.

The last thing we are doing is we have an activity going with about 20 universities around the world, because there is a very good chance, when you look at certainly innovation in Cambridge and Oxford here, that those clever technologies will or could come from academics, so we are trying to put feelers out to 20 different universities globally to ask if they have any sense or hint of somebody developing something like this, we would love to be a trial pilot.

Q474 **Jerome Mayhew:** Are you saying that the technology doesn't currently exist in order to satisfy what will become a legal requirement in a few months' time?

Liv Garfield: I am saying I currently do not have a monitor that I have seen that would do that. I am saying—

Q475 **Jerome Mayhew:** Can we open that up to the rest of the panel? What is your experience in this area?

Susan Davy: Yes, I can start with that. Very much in a similar place. We are joint venturing with the University of Exeter and we are looking at a centre of excellence there, which, among other things, we will be looking at how we can develop those monitors that are required, but we do not have anything yet that would do that.

Jerome Mayhew: Ian, what about you?

Ian McAulay: I think we are trying a combination. Everyone is in the same place of looking for the silver bullet sensor that does absolutely everything in water quality, working backwards up the line and trying to measure water quality parameters that can infer at the point of discharge, also looking at the modelling of the dilution and diffusion as well to put them all together to try to, I think in the earlier days, move this forward quickly. If we can't get it exactly, we can get a good inference in terms of the impact on the overall water quality of the receiving water.

Q476 **Jerome Mayhew:** Does anyone else have anything useful to add on that or shall I move on? I think that is a move on, isn't it?

I am very encouraged by quite a few of the answers earlier on in this session about the willingness to make data publicly available and some of the moves that have already taken place, but in our discussions as part of this inquiry and on our site visits, I think there are four things that are very important for citizen science really to flourish here. One is information about effluent quality; the second one is metered flow; the third one is spill start and stop times; and the fourth one, very importantly, is the granularity of the data that you publish. Professor Hammond, who has been praised by Ms Bentley already during the course of today, has made it very clear that you need to have the level of granularity of about 15-minute data flows. When you make your public commitment, as you have done today, to publish in real time or as near to real time as possible this data, do you commit to those four requirements, including the level of granularity?

Sarah Bentley: Maybe I could pick up there, because I think when you asked the previous question there were two different parts to what you were asking about. One was around volume and the other one was around quality. I think that there are different levels of technology. The technology around flow is available today. The event duration monitors, the EDMs, as we have talked about, have start/stop times, which was one of your four criteria. They are available in 15-minute intervals. I answered Dr Offord's question earlier and we have committed to publishing those parameters by the end of 2022.

The metered flow monitors are the additional monitors that we are now rolling out—the 250 monitors that we are rolling out so that we can understand what flow we are treating prior to a spill event, or just to monitor the flow that is going to a storm tank so that we can see if there is any other operational intervention. The first two parameters are available at the end of next year. The flow monitors, as soon as they are available, absolutely we will commit to those.

The piece that some of my colleagues talked about around innovation is around effluent quality. Citizen science projects, either with smarter water catchments or the Oxford river swimming project that we are doing with Claire Robertson, the Rivers Trust and Thames21, are looking at the different parameters. That is the area that we are all searching to

understand what we can measure, how accurately we can measure, and how the information can be presented usefully. From a Thames perspective, and I am sure other colleagues will comment, two of them are happening straightaway, one of them will start as soon as we have the flow monitors in place, and the other one is really dependent on the insight we get from these trials, which we will also be publishing.

Q477 **Jerome Mayhew:** What is it that could prevent you from agreeing to publish to the granularity of every 15 minutes? That is what is needed, and my understanding is that you have that information already, but that when you release it to the public it is often aggregated, making it very difficult, therefore, for people like Professor Hammond to do the good work that you have praised yourself.

Sarah Bentley: I was not saying that we will not publish it. Sorry if that was confusing. We will publish the 15-minute data but in terms of making that readily available, we are working with the Oxfordshire trial with their swimming alerts—they are available right now—to make sure that when we present that, we present it in a way that is as useful as possible. Some of my colleagues who already publish data get feedback from customers that the information is confusing in terms of giving them the right information about whether they want to enter the water for swimming or other recreational purposes. We are fully committed to the transparency; we just want to make sure it is useable.

Q478 **Jerome Mayhew:** On that confusing data point, I would like to give you an opportunity to correct a statement that you made earlier. Professor Hammond is monitoring these exchanges, as you can imagine, and he has clarified that his latest report on underreporting by Thames is not based on artificial intelligence but on actual data points. It was not an inference; it was based on hard data provided by the Environment Agency.

Sarah Bentley: Apologies; I thought I had clarified that earlier. It was an extrapolation of some data points across our network, as opposed to an inference. I apologise for confusing the Committee.

Q479 **Jerome Mayhew:** Thank you. This is my final question. Heidi, could you answer this first? We have heard concerns about transparency around permits and EDM data. We have all the publishing commitments you have given, which we are really grateful for. Will you share these with the Environment Agency and also with Ofwat so that they have all the data available for investigations?

Heidi Mottram: Yes, of course. We already share all our data with the Environment Agency fully and transparently. That is already the case for ourselves, and I am certain it will be for the other companies as well. We have not been asked to share information directly with Ofwat, but there is no problem with that at all if they require that as part of their processes as well.

Q480 **Jerome Mayhew:** I will quickly whip across the board. It is the same

issue for Ofwat for all the rest of you as well?

Sarah Bentley: Yes, I agree.

Ian McAulay: Yes, we do.

Susan Davy: Yes.

Q481 **Chair:** Thank you. Before we go down to Cornwall and Cherilyn Mackrory, three of you have just said you are not aware of monitoring equipment that monitors the water quality in receiving waters from any of your outfalls. Are any of you aware that Scottish Water placed a contract to do just that with a British company this spring, having put it out to tender this time last year?

Liv Garfield: To be clear, I said volume. I was talking about volume specifically. Our EDM monitors do not capture the volume part of the data; that was my point. When you look at Jerome's list of the four, it was the volume one, which is the struggle right now. I think that is true for everybody. That is the one that does not yet exist. In terms of quality, a couple of us are trialling different things at different sites, not dissimilar to Scottish Water. There are a few trials going on on the quality part. It is the volume part that is currently the struggle.

Q482 **Chair:** You agree that there are capabilities of testing water quality available to be trialled now?

Liv Garfield: To be trialled now.

Heidi Mottram: We are all in the situation of trialling things and trying to pick the best and most robust ones before we commit.

Ian McAulay: One of the points that came out clearly from the previous sessions as well is the definition of all the parameters of water quality, as Dr Offord has mentioned as well. There are a wide range of parameters that can define water quality, and finding an instrument that does all of them at the one time is impossible, but we are trying to get the right level of information that gives a good indicator.

Q483 **Chair:** I would strongly encourage you to speak to Scottish Water, because they have found one that does 15 different parameters, including three biological ones.

Ian McAulay: We do, yes.

Q484 **Cherilyn Mackrory:** For complete transparency, I have been a member of Surfers Against Sewage for over 10 years, and have met Susan on one of the Upstream Thinking projects, which I hope we will come to a bit later in the discussion. For now, Susan, could we talk a little bit about where we are in the south-west? It has been 30 years since privatisation, and in the beginning quite a lot of infrastructure was put in place. Why do you think only 14% of English rivers are in a good ecological status, particularly in the south-west? We also get the Government rebate of £50

on our bills. What do you think is preventing water companies from making the investment necessary to fix these issues?

Susan Davy: There are a couple of things in there. I will start with the good ecological status. About 20% of rivers in the south-west achieve that good ecological status, which means that 80% do not. In terms of the impact that we have as a water company on those rivers, we account for some 19% of those rivers that do not achieve good ecological status.

On the investment that you referred to, yes, a significant amount of investment went into the work to improve the quality of the bathing beaches of the coastal region in the south-west over the last 30 years. We are investing in our assets, treatment works and networks across the whole of the region.

By 2025, our investments will take the 19% impact that we have on those that do not achieve a good ecological status in the south-west down to around about 11%, and we will be targeting elimination in the next regulatory period. That is what we are focusing on achieving. However, good ecological status is about the ecology for the rivers, and not necessarily about the health of individuals for bathing. For bathing, you need to be monitoring and focusing on the bacterial loads, which we will be looking at when we think about inland river bathing. We have two pilots on the Dart and the Tavy to investigate that.

Q485 **Cherilyn Mackrory:** Thank you. I will expand a little bit. Again, I am going to declare an interest. I am married to an under-10 fisherman. He does not use nets; he uses hook and line. Fishermen in Cornwall are facing a potential bylaw from EFCA to ban all inshore netting by the under-10 fleet, purely because the Environment Agency says there is evidence that that will save the salmon migration up the rivers in the south-west but has not yet presented any evidence that has satisfied the fishermen. What you are telling me is that this is multifaceted, and you have admitted that it does not necessarily have anything to do with netting salmon at sea; it is more to do with everything we have been talking about today. Could you comment on that and work out where that evidence might have come from?

Susan Davy: Apologies, I cannot comment on the specifics of that, Cherilyn, but I am very happy to take that away and look into it. There are some 350 water bodies that we would look at in the south-west to identify inland rivers that are not achieving good ecological status. I can take your query away for further investigation.

Q486 **Cherilyn Mackrory:** Thank you. I will move on.

Ian, I have heard from the panel today that everybody is on the same page here. We all want to have clean inland waters and clean bathing waters. You have said that you have a zero-tolerance approach, and that you speak regularly about it at board meetings. Could we talk a little bit about Ofwat and Ofwat's price review? It is supposed to balance the interests of low bills with your operational costs and how much it takes to

meet infrastructure costs, environmental costs, and so on and so forth. Has Ofwat's emphasis on keeping water prices low forced your companies to sweat the assets, as it were, rather than seeking funding elsewhere for routine or preventative maintenance?

Ian McAulay: That is a good question. Does it absolutely drive that? Is trying to make costs as efficient as possible for customers the right thing to do to? We have done the estimate, and Rebecca Pow has reported on it, that it would cost perhaps £200 billion to go about eliminating CSOs with hard infrastructure. It is an area where we have to ask where the best value is derived for customers. Clearly, as we move to PR24 one of the key issues for us is base maintenance, capital maintenance. Many of our assets are older and we believe there should be more money directed towards maintenance, capital maintenance and renewals. That does hold us back a little bit. Clearly, there has to be more investment, and one of the things I am very pleased about is our new investment deal, with £1 billion of equity coming in, which will be directed towards the asset base to build resilience. Resilience is the last part for me.

I think regulation works really well in the UK. There are two distinct areas. One is where we have an asset base that is incredibly well understood and the conditions are well understood. That should be driven towards efficiency all the time. All of us face into this uncertain period, this period of ambiguity where we do not know all the answers. That is where PR24 has to focus on an outcomes-based approach, in some cases having to make some investments that we can absolutely guarantee will deliver the specific scientific responses that we know are the right direction of travel. That is what we have asked for in PR24. I think we are all of that one voice, and I think Ofwat are moving in that direction as well.

Liv Garfield: I would like to make a comment. Investment is brilliant, and certainly Ofwat is one of the key bodies that will drive investment in our sector. However, while I look forward to the day in 2030 when we wake up and ask, "Have we really made a difference to inland bathing quality?", we could deliver all of our responsibilities, accelerated and brilliantly done, we could achieve all of our RNAGs, and say, "Okay, we have done our share". However, if you look at Natural England's report that came out this week on SSSIs, and if you look at the one that is in my constituency, the River Clun, it highlighted that they looked in detail over the last while of this and found that 61% of phosphorous is from agriculture, 99% of nitrate is from agriculture, over 75% of sediment is from agriculture. In their words, Severn Trent have reduced their in-combination phosphorus contribution by 75%. There is nothing more for the water company to do.

There is an argument for investment. There is definitely more we can do and should do to make our assets better and stronger for the future, but unless we really get after the catchment and understand in detail for catchment—I think back to Dr Offord's point earlier of the exact science

of each catchment—we could be in danger of doing lots, and hundreds of millions of pounds' worth of good work, but not transforming the end river quality.

Q487 **Cherilyn Mackrory:** We will come to the catchment a bit later on in the discussion. We would all agree that it is multifaceted. It is not just investment from the water companies that is needed; different practices and land management come together. My question is more around if we want to keep bills low—and everybody wants to keep bills low, whether you are a customer, or a politician or a water company—where is that investment going to come from?

Liv Garfield: Investment comes through innovation, does it not? If we look at what we have done over the course of this five-year period, we have invested. We are investing more than ever. If you look at what we are doing, we are doing it with more innovation. One of the things we have talked about quite a lot as a sector is that we want to do AI. That gives you the opportunity. You want to do no-dig processes. You want to reline pipes, versus digging them all out. You want to make sure that you take the very best data, which means you can do less chemical treatment. There is quite a lot of effort that can come but as Ian just said we want to do nature-based solutions that hopefully create a long-term cheaper bill. They might have a short-term higher impact, and the analysis says, "If you want to go nature-based, in the short term it is more expensive than concrete". But if you look at the long-term bill—our bill profile works over an asset investment over a 20-year journey—you can achieve both. If we embrace nature-based solutions, that will keep the bill low for the long term, but it will require us to change how we think and how we design in the short term.

Q488 **Cherilyn Mackrory:** How far in advance are those financial models happening? You have said it will be a big outlay. Do you expect to recoup that in two, three, five, 10 years? Has that modelling been done?

Liv Garfield: Nature-based solutions could cost maybe twice the price of concrete solution, certainly right now and looking at a five-year period. If you look at a 20-year journey—and not all prices get added straight on, they are added on over a 20-year journey, that is how it works—there is good belief that it would be cheaper over that period of time. We are doing a few trials now, and that is true for some of the others along this table as well. Everyone is trying to do clever trials and as we get into PR24, we hope to have the evidence base that says this is the answer.

Q489 **Cherilyn Mackrory:** I will open it up to everybody. The Government have recently published their draft strategic policy statement for Ofwat. Do you think the SPS has set clear enough direction for Ofwat on water quality and environmental improvements? What do you as companies want to see from the SPS? I will go to Heidi first.

Heidi Mottram: The first thing is there is a lot to be commended in the SPS. It is really encouraging to see the Government focusing, for

example, on nature-based solutions. That is something Liv was just talking about there, on resilience and on adaptation to climate change. There is a lot of really good stuff in the SPS, and we are pleased with that direction of travel. The conversation at the moment is more about whether we can be more specific about what we are looking for and over what timescale. Then, can we link that in with how Ofwat responds to that so they can report back to Government to show how the regulator regime is allowing that to be delivered over time and in a sensible way—for example, not all back-end loaded, which would not be efficient or sensible? There is really good stuff so far, but if you look at the responses from water companies, us, or Water UK more broadly, what we want now is to get some more specifics in about what good looks like and when we achieve it.

Ian McAulay: There are two or three good examples out there of looking at where the money comes from and cross-sector collaboration. At Chichester Harbour in particular we have managed to pull together a coalition of 16 bodies who are all responsible in some way, shape or form for water quality. We have been challenged. We have an independent chair in Dieter Helm. We are doing natural capital accounting on it; we are building a natural capital baseline to measure the flows, the pathways, and the proportionate loads. What appears to be quite exciting is that there is probably enough budget being spent across all those 16 different bodies to produce an outcomes-based approach, which is to improve water quality, and perhaps not spending more money. That is one area.

The second one I encourage people to look at—and I am a passionate advocate for it—is Sussex kelp. If you have not seen Sussex kelp, it is well worth a look. David Attenborough has done the voice over. That kelp was taken away by inshore dredging and fishing between the 1980s and the 1990s. It has a carbon sequestration seven times that of trees, but it has a nutrient sequestration that is enormous, and it also protects against foreshore erosion. We do not currently have a mechanism in place for offsetting into the development of that forest, and that is a revenue stream that we are looking across multiple bodies to ask whether it is viable offsetting. It provides a nature-based solution, one of the most efficient that I have seen in my lifetime. There are a couple of ideas for looking wider than just the individual budget of a water utility or a local authority, and how to bring the collective together for better public value.

Liv Garfield: We have also said that we believe removing the automatic right to connect is a genuinely important policy change. I want to put that back on record. I know we have had correspondence with the Committee about it before, but I would hate to miss the moment to ask for it again.

Q490 **Chair:** Concluding on the SPS with Ofwat at the moment, we have been talking about the oral commitment to reducing pollution incidents. Are you willing to live with a requirement from Ofwat that pollution incidents are targeted at zero by 2030 for each company?

Liv Garfield: That is the ambition across the sector. It does require some investment. If you are asking, "Is that a really good, tangible thing to place in the SPS?", yes. I imagine everyone would say yes. Does that require investment to reach that situation? Yes, it does require investment to reach that situation.

Susan Davy: I agree. The ambition is there. It will require some investment, and it will require some other actions as well. Liv just touched on the right to connect, but I think we will probably come on to what is being demanded of our catchments, which has shifted over time in our region, with the added tourism and the added flows that we see from precipitation over the last 10 years, but also what is going into our networks is changing. I am sure we will touch on wet wipes. We have the equivalent of 4,500 blockages caused by wet wipes in our region, and that is 450,000 tonnes of rag that we take from our network each year.

Q491 **Chair:** We are going to come on to that in a second. Could the rest of you respond on a zero target for 2030?

Ian McAulay: We should always try to put ambition into a forward look. We have already started to look at the timescale to get to zero pollution. We have run conferences on that basis. 2040 was the initial assessment. We are building more information against that. I am more than happy to engage on that. That is the ambition, but what is the timescale?

Q492 **Chair:** Sarah, you indicated some of the challenges that you face. How do you feel about a 2030 zero pollution target?

Sarah Bentley: As a number of colleagues have said, the ambition is right. The target is going to be tough to achieve. If I look at some of the challenges that I have articulated already in this afternoon's session that we are facing as Thames, some of them are systemic in terms of the nature of our treatment works and where they are located. If we stop flows coming out of our treatment works, we have to think about urban flooding. I absolutely subscribe to the ambition. A number of people have talked about the fact that we need to collaborate. I would really like to work with the lead local flood authorities, which are part of the local authorities, obviously with the Environment Agency and other participants.

Liv mentioned the right to connect. If a six-by-six semi-detached patio is connected into the sewerage network it can create in a storm as much rainwater going into the sewerage network as the sewage from 100 homes. I think 50% of front gardens in London have been paved over. We want to encourage people to have some hardstanding area to put their cars so that they can charge their electric vehicles as we electrify. I absolutely subscribe to the ambition, but there are some really difficult challenges, and it is only with planning and working with the different authorities that together we can achieve that ambition. We all want to see the water quality improved.

Q493 **Chair:** Heidi, can we do it? You can get to zero, from what you have told us.

Heidi Mottram: I am not quite sure whether you are asking in terms of discharges from storm overflows or actual pollution incidences.

Q494 **Chair:** Zero pollution incidents.

Heidi Mottram: We are the closest to it, with 43 last year on our 30,000 km of sewerage network. It is really tough. We set ourselves in our last business plan the target of getting that down to zero. It is a system that can be interfered with by lots of different people in lots of different ways. I do not want to say to the Committee that it is a simple solution. We have had it down to around about 40 to 50 for three years running now. It is proving quite hard to get it lower than that. When you are down at 40 across that huge network, that is pretty low. We will do our damnedest to get it to zero by 2030. That is what we targeted ourselves to do, and that is what we are aiming to do.

Q495 **John McNally:** My questions basically follow on from what has been asked earlier about the investments, basically the scale of investments and the shareholders' dividends and the investment in your businesses, the long-term upgrading of the sewerage and the stormwater network. First of all, my question is very straightforward to you, Susan. We keep being told that consumers will have to pick up the tab for the urgent investment needed to deliver a pollution-free sewerage system through higher bills. Are companies prepared to plough more of their profits into ending river pollution?

Susan Davy: First of all, the average customer bill for the south-west is £533, and that is lower than it was 10 years ago at £543. Bills have been going in the right direction. What we try to do is strike the right balance to make sure that we are investing to achieve the outcomes we need to achieve and keep the efficiency and innovation there to drive that efficiency, so that we can get the outcomes but also maintain a bill profile that has been falling for the last 10 years. In terms of the investment, and talking about our region, we have invested significantly over the last 30 years: £9 billion in totex—total expenditure—operating in capital investment, and £5 billion in capital investment as well. A significant amount of that comes from our shareholders in terms of the moneys that they put forward, as well as our lenders. The vast majority of our shareholders are pension funds, charities, and employees, and last year for the first time also our customers. We set up a customer share scheme, and now one in 16 households are shareholders in the business.

They have put their investment into the business to make sure they can support what is needed to invest fully into the region to improve those services going forwards. We have heard today that there is more investment needed, and there are more funds we will need to raise on an ongoing basis. We will have to think about how we do that. Our investors, having invested, a bit like a mortgage on a house, there is a return to

pay and there are dividends that come from that. Those are regulated, so the economic regulator, Ofwat, will look at the returns they think are appropriate for the sector. In terms of making sure there is support here, we need that support from our investors to make sure we can continue to invest in the future at the same scale we have been investing in the past.

Q496 **John McNally:** For purposes of clarity, are your companies prepared to plough in more of your profits? I am looking for a yes or a no.

Susan Davy: I think it is about how we deliver the service and making sure we are as efficient as we can be. That is one of the reasons the bill level I just quoted is lower than it was nearly 10 years ago. We have been as efficient as we can be for what we are trying to deliver for that investment. That is what we are doing to make sure we are striking the right balance in what is billed to a customer and what we are achieving in terms of our investment.

Q497 **John McNally:** I am still not sure if I am getting the answer I want. It was just a question for you, not for anybody else. I am seeking a simple yes or no. Are you prepared to plough in more of the profits of the company to end river pollution? This is specifically about taking profits and putting them into ending river pollution. The knot of the whole argument is: are you prepared to do that and can you say that your company will take money from your profits and invest in ending river pollution? That is the question everybody wants to hear the answer to.

Susan Davy: As I said, in terms of that investment we need the funds to invest. We are not taking that from customers' bills directly, initially. That is coming from investors. Obviously, as you do with a house and a mortgage, there is a return that is required for those investors that goes into that. Obviously, that will go forward. In terms of making sure we are being as efficient as possible, that helps with the level of the customer bills and makes it as low as it can be.

Q498 **John McNally:** Basically the same question for you, Sarah. You spoke earlier on about the Thames tideway project and the significant capital investment in the infrastructure of it. Could you enlighten us on the benefits of the project and what reactions you have had from the customers, and how much it will add to their bills?

Sarah Bentley: The Thames tideway project, as I mentioned, cost £4.9 billion. It is not currently operational. The first section of it is operational. That is the Lee Tunnel, which is the first five miles. That already holds a significant amount of storm capacity in terms of the flows through London. The amount on the bills is around £19. That is in the bills already. I think Mr Dunne asked the question about how you can elongate them. It is an exemplar project to ask, "How do you put these significant, lumpy bits of expenditure that are needed to take a step change?" In terms of the benefits, as I mentioned, 39 tonnes[2] of

[2] Thames Water has subsequently contacted the Committee to request a factual clarification that this figure should read 39 million tonnes rather than 39 tonnes.

rainwater contaminated with sewage currently spills into the tidal Thames, which I think all of us find unacceptable. When the tideway tunnel is operational, that will substantially reduce it. The modelling suggests that on an average year that will reduce to 2.4 million, so 36.5 million tonnes of sewage that would go into the Thames will be prevented by the tideway tunnel. We now have the challenge of, first, making it operational over the next couple of years and, more importantly, then working out what we can do with the rest of those discharges.

Q499 **John McNally:** It seems quite a good return, then, if your average bill will increase by £19 for an investment like that if it helps to drain the water. Most of us going around about here will have smelled various things walking around the roads at various times. It has probably improved quite a lot since I first came down here 40 years ago, but it is still a significant problem. However, you are on the right track.

My last question basically gets to the heart of the matter, Chair. As you all know, Scottish Water is a publicly owned company, and by the way, the chief executive is paid around £366,000 a year. It is a company with a worldwide reputation and is innovative in all capacities. Essentially, from my notes, I see that the Severn Trent chief executive is paid £2.4 million per annum and the chief executive of United Utilities is paid £2.3 million per annum. Indeed, as far as I can see, English water companies have paid more than £2 billion a year on average to their shareholders since privatisation some 30 years ago.

With that in mind, all your companies say that the environment is one of your key priorities. It probably should be the key priority. Would your companies be willing to tie executive pay, bonuses and shareholder dividends to environmental performance?

Heidi Mottram: It already is. I am challenged to meet those targets to have part of my remuneration, absolutely, yes.

Sarah Bentley: Yes, likewise, my personal bonus is tied to environmental performance as well as customer service and leakage, which has an impact on the environment, and those customer performance measures we have talked about.

In terms of shareholders, as I mentioned earlier, our new shareholders—who are largely the pension funds of key workers like BT, which has been keeping us connected over the last 18 months with the university lecturer scheme—have not received a dividend in four years. They have put in additional funding in the last regulatory period so that we could invest in our assets to the tune of £770 million. In one of my opening remarks, I commented that I have secured an extra £300 million to invest in our water assets. Our investors take this incredibly seriously. Our board takes it incredibly seriously. Our leadership targets are all tied to these performance metrics.

Ian McAulay: Similarly, John, we have not paid a dividend now for several years. It was a conscious decision. There was a recommendation

to the board that we had to invest more into the asset base, given the position we found ourselves in. We have recently brought in new shareholders and those shareholders have put £1 billion of new equity into the business. None of that will go to the exiting shareholders. It is all for investment and reducing debt. We are putting immediately £230 million in an asset investment programme over and above the FD that will be funded from that as well. Like the others, my bonus has environmental performance in there as well.

Susan Davy: I will start with the bonus first and the remuneration. Yes, I do have environmental targets in my bonus. For last year, where we did not achieve, I did not receive that bonus for that.

As a business and as a board, we are all held to account by our shareholders, who ask us about our environmental performance. Indeed, we launched our customer share scheme last year, so we now have three times as many customer shareholders as we have institutional shareholders. We hold open quarterly meetings with those customers who would like to join and, for the first time, we are holding a customer AGM in November, where I will get held to account and the executive will get held to account for the performance. The last two sessions we have had have been about our environmental performance. Our shareholders are holding us to account.

Liv Garfield: The vast majority of my reward is performance related. We have been four stars the last few years. I guess we are confident again of continuing to deliver that good performance. Over 50% of the variable part of the reward is linked to environment and the vast majority of the total award you mentioned is variable and is performance related.

None the less, even though we have been four stars for the last few years, we have still chosen as a company to invest more than the regulatory settlement. We are choosing to invest. Back to your question earlier, yes, we are choosing to invest slightly more than we are expected to invest because we want to keep pushing on in terms of that environmental performance. If you look at our dividend versus investment, over the last five years as a sample, we have made four times as much investment versus the dividend paid out to shareholders. Again, we are trying to live and breathe right at the heart of the spirit of it.

Chair: Thank you, John. Robert Goodwill has a quick question on some of the agricultural elements.

Q500 **Mr Goodwill:** Yes, thank you. I would like to direct my question to Liv Garfield and Severn Trent. It is about how we can improve the quality of some of our river water to allow swimming. I hasten to add that I am in Heidi Mottram's "wuss" category, not so much because of pollution but more to do with temperature. The fact that 400 people accidentally drown every year in this country is something else we need to look at if we do allow more swimming. We need to make sure that there is adequate

safety there.

Liv, what are you doing to clean up sections of your river network to allow swimming? Would that be driven by the consumers, who pick an area they would like to have cleaned up, or would you see your job to see where you could most easily and safely deliver an area for swimming?

Liv Garfield: We are unfortunate in the Severn Trent patch that we do not have any beaches. We are landlocked and that means that—

Q501 **Mr Robert Goodwill:** I am talking about rivers.

Liv Garfield: Yes, completely. I promise you I will answer the question. We are landlocked, but we know that means that people are twice as passionate about the opportunity to inland bathe. That is why we decided to go big on the green recovery scheme.

Over the course of the next three and a half years, we will make for the first time ever bathing water quality standard rivers. It is a 49 km stretch and so it is quite a big situation. It is across two areas. One part of it is not far from Ludlow and one part of it is on the River Avon. We have chosen locations where most people can get to easily, where there is a history of people previously wanting to swim there, so there are effectively customers who want to go there and swim, and where we think we can build amenities. Think of Munich or Copenhagen where they have the setup already there. In Munich 1 million a year go and swim and use it almost like a beach on hot days.

That is requiring us to take a catchment view across the whole area. We are spending about £130 million doing this piece of work. It is a lot of work and a lot of area, but it will end up creating a genuinely brilliant amenity. It will hopefully be a case study that we can use. We have openly said as a company that we think every county, ideally, would have access to a location for bathing river quality standards. We would like to see that long-term across the country this became more normal, accepting that not everyone might want to swim—some might want to paddle with their toes—but we would like to get to a situation where it became a genuine British amenity.

Q502 **Mr Goodwill:** Thank you. That is encouraging. It is not just water companies that discharge into rivers. There are evil farmers like me who put fertiliser on their land or have livestock. How are you working with your farmers to ensure that you have a co-ordinated approach to some of these areas where you want to clean up the rivers?

Liv Garfield: We have a good funding scheme with 9,000 farmers. It is not every single farmer in our patch but it is a good majority. We are working with them to try to help them understand their impact. As part of it, we have an entire young farmers community and we have 30 dedicated catchment managers who are trusted by the community to go in, sit around the table, have a biscuit and say, "Let us analyse your farm. What can we do?" Sometimes it is chemical storage. Sometimes it

is bunding. Sometimes it is where the pigs are kept. Sometimes it is crop rotation. Sometimes it is beetle bunds and hedgerows. A lot of it is trees by the edge towards rivers to hold on to it and act as a natural sieve. It is a whole range of activities. It is not yet enough but we are already helping to fund 430,000 hectares of land with different schemes across the piece and we want to do even more. On a self level, we are taking 5,000 hectares of our own land and are looking to rewild and to create a future there. We are also planting 1.2 million trees. We are completely committed. We believe that the long-term future has to be nature positive. Every large company in the land needs to have plans to measure, understand, size and then address and get nature positive.

Q503 **Mr Goodwill:** Do you think the new way that agricultural support will be delivered through environmental land management—*[Inaudible]*—farmers could have a part to play, and have you talked to or worked with others who might see how Government money could be used to deliver support for farmers to do that?

Liv Garfield: I would love ELMS to be an outrageous success. I do not know whether it will be but I would love it to be an outrageous success where it creates buffer strips down by rivers to protect river quality, but that it does not become too onerous for farmers to fill in because that is one of the issues that we know with schemes like that. If it is too complicated, people do not have the time. They are busy farming their land. My hope is that it is an effective, low-admin-level scheme that allows people to change farming practices. The reality of the analysis from people like Natural England and the Environment Agency on my rivers is that two thirds of the reasons why rivers do not meet ecologically good status are due to agriculture. Effectively, all the good work that lots of others will do will be subsumed. If you look in my area alone last year, all of the 100% improvement that we made in our region was subsumed by a deterioration of agricultural contribution. I am passionate and I hope ELMS creates a new sense and a new ambition.

Q504 **Dr Offord:** For the sake of brevity, I would ask if you could each write to the Committee outlining how much corporation tax your organisation pays each year.

But my question has been discussed already about policy co-ordination and how it could be improved across planning, land management and local authorities in order to clean up our rivers. We all agree on that. But you should be aware that in our last session the relevant Minister at the time, the Minister for Housing, Communities and Local Government, refused to appear. We find that quite disturbing. That Department is responsible for delivering the Government's housing ambitions.

I want to get your views on whether you feel that that Department particularly and developers in places like Colindale in my own constituency are not doing too much to overload the sewerage network. One of the biggest criticisms I ever hear when more properties are built is that people cannot get a school place, they cannot get a GP surgery and

they know they are overloading the sewerage system. I want to get your views on that.

Liv Garfield: The sewerage network can cope with extra population growth and sewage. The problem is it cannot cope with the extra often rainwater creation of a new housing estate. That housing estate might be on good catchment land. We would love—and I would love certainly—the policy to be made clear that every new development must have SuDS. If you create every development with a SuDS, then we know that we are doing the opposite. You could argue that if you live in a nice village but you are prone to maybe have extreme weather that you never used to have, if the developers built extra SuDS, it would help the whole village. It could become a real positive for development versus the negative that it is currently perceived.

I love what the Government has done whereby they introduced something on developers in terms of biodiversity net gain. We need exactly the same situation with a surface water net gain measure. That would be my simple ask.

Q505 **Dr Offord:** Interesting. Mr McAulay, I pick on you only because the amount of development in the south-east and the south is quite significant.

Ian McAulay: Yes. It is a valid point. If we were only talking about load, if we took all the surface water out of the sewerage system, you would have quite a lot of capacity. This area has significant opportunity to create capacity.

It was quite startling. We had a look at the new housing and the existing. In 2050, 80% of the houses that will be there already exist. The bigger issue as we see it is actually in the existing housing stock, which has never been designed for water efficiency. We are holding a developers' conference next week—we do it annually—to look at what more could be done. Water neutrality and nutrient neutrality are important commitments.

I absolutely support my colleague in terms of SuDS. A key thing about SuDS, though, is you must maintain them because, if you do not, they quickly become a problem. Looking at offsetting into the existing housing base looks like quite a positive way for new development to help with that problem of 80% of the issue that is already there. We are looking at retrofitting, for example, working with the councils in that area, doing additional rain gardens and more SuDS into the existing housing stock, and trying to create better capacity on both sides.

Q506 **Dr Offord:** I agree. My final question is on—and again, this has been made clear—the issue of right to connect. Is anyone in favour of it remaining?

Sarah Bentley: Firmly not.

Liv Garfield: No.

Ian McAulay: We do discuss with the developers whether the right to connect is the right thing. We have had energy efficiency now for however many years and it is absolutely the norm. We still do not talk in water efficiency. If you have a house that is 150 litres per head per day—and 100 is perfectly achievable—then over the average lifetime of a house we are committing 50 years of 50% inefficiency. For me, I am keen to look at the right thing to connect rather than simply the right to refuse.

Chair: Thank you very much, Matthew. We have a few quick questions picking up on the catchment challenges, which you are all facing, but they can be quick. Cherilyn, you wanted to pick up on some of the agricultural farming rules for water issues.

Q507 **Cherilyn Mackrory:** I did. Quickly back to Susan in the south-west, could you explain how the upstream thinking has worked? You have been doing this for many years now. What benefits have you seen from this approach that others could learn from?

Susan Davy: Yes, I am happy to. We started with our catchment work back in 2006 and so we have been doing it for some 15 years now. We wanted to achieve two things from it: collaboration and working in the catchment to achieve a better outcome, and also making sure that we were measuring the science behind what was happening as well so we could prove the case for further work and investment and to avoid end-of-pipe solutions and pouring concrete. If we think about what we did with Clean Sweep, we invested significantly in storm storage to achieve bathing water quality and ended by building storage the equivalent of 86 Olympic-sized swimming pools. But we think we can do that in better ways now in terms of looking after our rivers and our inland bathing through catchment management.

We have been working in 80% of our water catchments now and we have been working both upstream on moorland and on peatland, where we have been restoring and making sure that we can work with landowners and managers to restore that peatland, as well as working downstream in the catchment with farmers, those who own and then those who manage the land as well, to think about the impact that their practices may have on the river water quality as well.

What have we achieved with that? First—and this goes back to another question about the impact on customer bills and pricing—for every £1 we have been putting in, a match-funding amount has come from others as well to achieve the great outcomes we have been seeing. We have restored over 100,000 hectares now in the catchments in our region and we have seen runoff, which causes flooding and inundation further down in the catchment, reduce by between 21% and 31%, depending on which area of the catchment we are looking at and the dissolved organics have

gone down by 10% as well. That has been important when we are thinking about water quality.

If you think about Dartmoor, in terms of the upland peatland work we have been doing where we have been restoring those peatlands, Dartmoor alone can house about 10% of the carbon of the greenhouse gases of the UK. It is important that that work is done.

That has been some of the work we have been undertaken. There have been some real successes there. Recently, we have also done a scheme at Combe Martin, which is the area in Devon where we were not achieving a good bathing water outcome. In fact, it was classed as poor. We have worked in the catchment to achieve an outcome there to move from poor into good quality bathing. That has been working with the trusts in the region and with lots of the community in the region. We have been planting trees. We have been investing in our network and we have been putting in smart water butts as well. Those catchment solutions have enabled us to achieve the outcome of moving Combe Martin into a better place for its bathing water and it has cost half as much as the concrete solution for storm storage. We have seen some real success from the catchment work.

When we talked earlier about the SPS and what we would like to achieve, it is great to see the nature-based solutions, but it would be great to move them from the niche to the mainstream. We can achieve a lot from doing that.

Q508 **Cherilyn Mackrory:** Thank you, Susan. I have to say for the Committee I was impressed when I went to the project that I saw down west near Helston, I believe. It was brilliant.

Susan, the Environment Agency recently changed the farming rules for water. What impact does this have on the ability of water companies such as South West Water or others to dispose of sewage sludge for agricultural use?

Susan Davy: In our catchments and in our region, the farmers have been using the sludge for their needs and so that is having an impact for them. We want to work with them to achieve the right outcome, so we are working through that and will be over the coming months.

Chair: John, did you have a final question?

Q509 **John McNally:** Yes, I did, Chair. Thank you. It is to Heidi. What is stopping nature-based solutions being used to better manage nutrient-overloaded catchments?

Heidi Mottram: In some respects you could say nothing, but this will definitely be through partnership working. It was interesting listening to Susan there. South West Water owns quite a lot of its catchments and Northumbrian Water does not. That is the unusual history of privatisation, I guess. We work with myriad people both in urban environments and in

the wider upland catchments where the land is owned by other people. We find, which is encouraging, that people do want to work with us and can see the sense of all of these. They are not always necessarily black and white. We are trying to get away from the idea of end-of-pipe where perhaps you can see something black and white but the carbon impact of that is not palatable. Nature-based solutions will be a little bit more variable but they will get a better outcome for us overall. The key to this is partnership working, understanding the science and monitoring. I feel encouraged by the experience that we have in all of our catchments, not only in the north-east, but we do similar work as well in Essex and Suffolk where we are managing more the flow towards water quality for abstraction and treatment rather than the wastewater side of things because we are a water-only company there.

Q510 **John McNally:** It sounds like you have had a lot of difficult conversations.

Heidi Mottram: I would not describe them as difficult. We have a lot of people who genuinely see the need for this. I am hugely heartened by the work that we do with farmers and with other landowners who want to be good custodians. Like Liv, I am hopeful that ELMS will be another pathway to encouraging people to get good outcomes from this process.

Not everybody is the same, of course. We do things like hiring people to talk with them in our company who come from a farming family background because they can talk the same language and have the same histories and understanding. That works well. But mostly I would say that this is positive. I would love to say it is 100% but mostly it is. We have heard some great stories this afternoon. We are all making good progress.

Chair: Thank you, John. I will wrap up in a moment with a couple of final questions, but before I do I would like Helen Hayes to have a go. Thank you for getting here, Helen. I know you had a constituency commitment.

Q511 **Helen Hayes:** Thank you very much, Chair. I have a few questions on the subject of fats, oils, greases and chemical and plastic pollution including wet wipes, if that is okay, starting with a question for Ian McAulay. How much are blockages caused by fats, oils, greases and plastic sanitary products, costing both companies and consumers? Is there a case for recouping some of that cost from the manufacturers of those products and what would be the mechanism for that?

Ian McAulay: I am getting a bit older, so I will make sure I give you exactly the right figure because we do have it. Overall, we are saying that that could be up to £200 million for blockages in terms of the actions that we have to take.

We do now pursue some recovery. For example, in Southern we have brought into our workforce former police officers who will go out and visit premises. Our preference is to educate and to demonstrate the right stuff

that can go in and make sure that we can work with people, inform, assist and then help them to do it.

Q512 **Helen Hayes:** In those cases you are recouping costs from your customers rather than from the manufacturers of the products that are being misused, which is the problem in the first place. Is there a case for recouping some of those costs upstream from the manufacturers?

Ian McAulay: Sorry, I misunderstood you. Yes, there is undoubtedly a case for people who are producers to understand the environmental impact and the costs of it, yes, I agree, and there is work being progressed towards that as well.

Q513 **Helen Hayes:** I do not know if anyone else wants to comment on that issue.

Sarah Bentley: Yes, I have some facts, Helen, that might be helpful. We have 75,000 blockages a year on our network, which is a substantial amount. We are serving the largest population out of all the water and wastewater companies. Some 85% of them are caused by unflushables.

If I put that into context, each and every day we take off 30 tonnes of unflushables from the screens at Beckton. We have already talked about the Thames Tideway Tunnel, so we know that that will only get worse when we have more of that flow coming in. That is from that part of the network. We spend £5 million on skips for the amount of debris we take out of the blockages every year. It is a significant problem.

There are companies out there—Andrex, Aldi and Naturecare—that have fine-to-flush wipes. Could other manufacturers adhere to the fine-to-flush standard? All of us, though, much prefer that pee, poo and paper are the only things that enter our sewers. Once we know that that is true, then we know that our systems can handle it. We deeply need to see that behavioural change.

Q514 **Helen Hayes:** Thank you. My next question is to Heidi Mottram. You have been running, I understand, the Bin the Wipe campaign. Can you tell us about the campaign and the success you have had through it in changing behaviours?

Heidi Mottram: Yes, we have. It is similar to what Sarah has said. A lot of customers have become confused by some of these products. Some of them are labelled in such a way that suggests that they can be flushed.

The Bin the Wipe campaign was a simple call to action, if you like, with the power of three. Bin the wipe. Just bin the wipe. Do not put it in the toilet. Only pee, paper and poo go down the loo. We do a massive communication campaign in the geographies that we are serving and then we home in on the people who do not seem to be understanding that. We have had brilliant success with this. Typically, we are getting similar numbers of blockages but we can cut them by in excess of 60% with this campaign.

I am heartened at the moment that the water industry is talking about how we can do this messaging together. We have recently had some positive success with water efficiency measures together with the Water's Worth Saving campaign, where we have literally had millions of connections with that on social media. We are now talking about how we can make the same simple messages to people. These products, apart from a small number that are actually fine to flush, are not flushable. Just bin the wipe. It is nice and simple. People get it.

Q515 **Helen Hayes:** Thank you. I have a question for Sarah Bentley. I am tempted to ask you when you are planning to replace the water main on Lordship Lane in my constituency because we had another burst and a lot of disruption on that this week, but I will not ask you about that today.

I will ask whether you think there is more that water companies could be doing to promote the collection and reuse of waste cooking oil, perhaps as sustainable fuel, to help with solving this problem.

Sarah Bentley: I will absolutely follow up after the Committee on the Lordship Lane burst and the replacement main. You know that we have quite a significant set of schemes in your area.

In terms of food service establishments, it has been interesting over the last 18 months. I am sure we all have similar programmes a bit like the campaign Bin It, Don't Block It. That is our version of Bin the Wipe. We all work with food service establishments. We have 44,000 in our region and we visit those. We have already visit 25% of them. It turns out that some of these food service establishments take three visits and still 10% of them remain non-compliant in what they are doing with their fats, oils and greases. Then we have to resort to enforcement.

As I mentioned, over the last 18 months, despite those programmes, those food service establishments were not open and so we found that some of the issues with fats, oils and greases were moving into neighbourhoods where people were either having home cooking kits or cooking from home. It is important that not just food service establishments but consumers as well understand that gravy, custard and things like that should not be put down the sink.

Q516 **Helen Hayes:** What about diverting it from the sewers through collections and alternative use, for example for sustainable fuel? Are there projects underway about that?

Sarah Bentley: There is a huge opportunity to do that. We have collections across a number of our areas but encouraging more collection of the fats, oils and greases and using them in recycled ways. It is all part of the circular economy. We want to keep sewage in our system so we can clean it up in the way that we know and treat it safely and return it to the environment and get water consumption down. That is one circular economy. If we do not put in things like fats, oils and greases and get them contaminated with sewage, then they make hugely valuable

sources of renewable energy. I know that a number of them will take those feed stocks into our sewage treatment plant. We have been producing renewable energy since the 1930s, so we want to continue to do that with any form of waste.

Q517 **Helen Hayes:** Thank you. Does anyone else want to come in?

Ian McAulay: Could I make a shameless plug, please, Helen? Tomorrow our chair and I will be hosting the European FOG Summit in the UK for the first time. All of the companies are contributing to that. It is looking at innovative technology, particularly in creating things like fuels, and technology to eliminate blockages as well. That will be held for the first time ever in the UK tomorrow.

Q518 **Helen Hayes:** Good plug. My next question is for Liv Garfield. We have heard evidence that sewage, sludge and water company discharges deposit microplastics into rivers and onto the land as well. What are you doing to minimise and prevent this?

Liv Garfield: Two things. I know one of the fears that is being discussed in the Environment Agency now as to why we should not allow sludge to go to land is the risk. I understand that there is a risk of it but I have never seen that actually happen in the Severn Trent area. We are careful when we work with the farmers. We are careful which fields the farmers place their sludge. On that particular sense, it is important that I have not seen that evidence in my patch. We work carefully with every farmer that we give our sludge to.

Specifically on microplastics, though, we have put a good process in place. We treat 99.9% to make sure. That is how much we remove from the process. When you think about it, in any process, if somebody achieves 99.9%, you could probably begin to look further upstream. Imagine a world where washing machines also captured 99.9% or imagine a world where garment manufacturers used materials that did not allow these materials to dispel. The water sector has a role to play in microplastics but is doing probably the job of an unsung hero already in terms of the capturing and treatment of 99.9%. We would love you to look a bit further upstream and think of the recommendations as to who else could do that same 99.9% role.

Q519 **Helen Hayes:** How are you doing that? We did a visit as a Committee to a sewage treatment works in the Thames area. There was not the capability to remove microplastics from the water supply in those treatment works. The staff were quite clear about that. How is it happening if 99.9% is being taken out?

Liv Garfield: I do not know that. I cannot comment on that. I will let Sarah comment on that. I know that we monitor quite carefully in our treatment process how to manage it. The next phase of the journey could well be ozone disinfection. That is the next technology that we are analysing. In Mansfield we will see whether that is part of the next suite of solutions. We constantly have to look on the next horizon. We know

that to date our treatment processes in our waste works do capture 99.9% of those plastics. We know that none the less we want to go further and that is why we are looking at ozone. I do not know what the difference is with what you saw on the day, but we can definitely follow that up if that is helpful. Sarah and I can follow that up.

Sarah Bentley: On the treatment works that you saw, as we talked about earlier, we have some first-order problems and we have to make sure that we are treating the capacity and that is what I am committed to doing. That is why we are investing £114 million to upgrade the 265 smaller treatment works. But I will happily look at the technology that Severn Trent is using. We collaborate well as a sector in terms of innovation and the Ofwat innovation fund as well. We have a lot of these collaborative projects. We will look at that as well.

Q520 **Helen Hayes:** Great. My final question is open to any and all of you to answer. We have heard that there is evidence of a chemical cocktail of unmonitored pollutants in rivers with an attendant risk of antimicrobial resistance developing in sewage pollution. What actions are the water companies taking to monitor this and prevent the risks? More significantly, is there a case to be made for the requirements that are placed on you in terms of what you have to monitor and remove from the water supply to be reviewed and changed so that you have different requirements? It came out of the visit again and again. It was a constant refrain from staff that they are doing quite well at the targets for the things that you are required to remove from sewage but whole swathes of substances that we know are harmful both to humans and to ecology are not being either monitored or removed at the moment.

Sarah Bentley: Maybe if I come back in, I am sure others might want to comment. We actively monitor antimicrobial resistance. We are monitoring it. I am looking forward to the work that is happening in the chemical investigations programme, a sector-wide programme that will report back next year on some emerging issues. The sewerage firms have been involved with the Joint Biosecurity Centre monitoring things like Covid outbreaks and being able to identify and work with the Government to contain the outbreaks throughout the pandemic. It is a good source of data. Then we have to work what we can do to respond to some of the antimicrobial resistance you are talking about. There is an active piece of research going on right now sector-wide that should provide some of the answers. We are all eager to learn lessons from that study.

Liv Garfield: I would like to add to that. We are blessed in the UK. We have an impressive and world-renowned regulator for water quality and the Drinking Water Inspectorate is recognised globally as being at the top of its game. It comes into its own with this. It has super-bright capable people who have dedicated their whole lives to being experts in that area and we follow their lead. They have the absolute A for analysing this and working it through. If you spoke to Marcus, who is the chief inspector there, he is monitoring this, looking at the science, working out when

things need to change and capturing it at the right time. I do not know whether you have met him yet but he would be a perfect person to answer that question.

Q521 **Chair:** I have a final couple of questions from me. I am grateful to you for staying on a bit longer than we had asked you to. To clear up one thing, the EDM data is providing information now by asset where a monitor is installed of the duration and frequency of spills. These spills are in part treated sewage and in part untreated sewage. Do you all agree that this data is providing mixed information or do I have that confused? One of you said earlier that there are not any untreated sewage spills in your area, but I think you all have untreated sewage spills.

Liv Garfield: If the question is whether I have raw untreated sewage going straight into a river, no, I do not. I then said, if the question is whether I have partially treated heavy rainwater coming through that will then be captured and assessed using that data, yes, some of those hours will lead to that. I was being clear about that. I do not have raw untreated sewage going straight out from the works into the river. We do not have that. But your articulation is correct.

Q522 **Chair:** But in some cases, the release mechanism is to send untreated sewage in if the plant is full. If all of your storm tanks are full, then do you send untreated sewage into the river in some cases?

Liv Garfield: We send combined, at that stage, when that occurs, a lot of rainwater intermingled with some sewage that will probably have gone through some treatment process on the way.

Q523 **Chair:** But it may not have done. It may be overwhelmed.

Liv Garfield: It depends. It is about the site. Typically, if it has gone through a process, in all likelihood, it has probably gone through some treatment on the way because storm tanks have gone through some treatment on the way but, yes, not fully treated. I totally agree.

Q524 **Chair:** But unless it has been treated to a tertiary level, it is still providing significant volumes of pollution, potentially, into water courses?

Liv Garfield: Significant quantity, no, actually. If we look at 100% of the RNAGs, the reasons for not achieving a good status, 3.5% relates to this discharge data, to CSOs, so a significant quantity, no. Only 3.5%, yes. It is important to be clear on that. A small minority is the spills in terms of creating RNAGs on river quality because it is heavily diluted and it is pretty much already rainwater.

Q525 **Chair:** Except that because of the lack of monitoring you cannot actually tell the impact on the receiving water in many cases.

Liv Garfield: You can if you think about it. We cannot tell that exact impact of that CSO, but the RNAG data, which is monitored by the EA, does constantly monitor that.

Chair: That is if the EA was monitoring, but we know that the EA is not monitoring to the extent that it should do. A great many incidents, not pollution incidents but CSO spillages, occur and we do not know. That is why we had been pressing so hard on the data monitoring, which you have all accepted we need to introduce so that we do know what the impact is on the receiving water.

Mr Goodwill: Could I comment on that? I know in Scarborough we have a massive storm tank and when we get heavy rain it flushes out all the crud from the drains and everything and it does fill up. When it overflows, most of it is rainwater because the sewage is a small proportion. Sometimes a storm tank, if that is what Liv was trying to say, will take the worst of what is sitting in the bottom of the sewers and sitting in the bottom of the drains. While it is in theory untreated sewage, it could not be classified in the same way as what would come out of your house when you flush the toilet in that concentration.

Q526 **Chair:** Thank you, Robert. Ian, you have a lot of the chalk streams and rivers within your patch where the flow of water is under significant pressure because of development and other reasons. Do you accept that if you allow abstraction of water, whether for your own purposes for drinkable water or for other uses, you are exacerbating the pressure on the chalk streams and that spillages occurring into those streams are compounding the polluting effect of the sewage?

Ian McAulay: We have abstraction licences, which are designed to allow abstraction for the purpose of supplying wholesome public water, which is an important matter indeed. We have committed to substantial reductions in those abstractions and we are now looking at alternative supplies to try to manage the impact on the health of chalk streams.

We have a large programme called Water for Life Hampshire, which is geared around the Test and the Itchen and is about substantially reducing the abstraction from the chalk stream and replacing it with alternative sources, water recycling, for example, additional water mains, water transfers, the new Havant Thicket reservoir to do exactly that: to take the stress off the Test and the Itchen.

Q527 **Chair:** Thank you. I would like to ask two more questions in relation to catchment and nutrient management. Liv mentioned the Clun catchment through the Natural England challenge. The Clun area is one of 14 in the country where development is currently halted because of a lack of clarity or a lack of agreement with Natural England on the nutrient impact from development. Do any of you have any answers as to how we manage to mitigate the extra nutrient load? As a country we cannot designate areas where there will be no development at all. We have to find a way to deal with this. What is the solution?

Liv Garfield: When you look at the outcome of that Natural England study for Clun—and I am not saying this is feasible but this is what the answer to fines says—you need to take 61% of the current agricultural

farmland and convert that to woodland. That would rebalance that catchment. It is as extreme as that. Something like that is the extreme, but trees are a good chunk of the answer. They are a natural sieve for holding on to nutrients. Likewise, peatland plays a key part. Someone mentioned earlier kelps. We have to embrace nature. The answer will have to be every development committing to being positive for water nutrient capture through SUDS and through using biodiversity. If you listen to what Zac Goldsmith has done some announcements on, if you were to use 100-metre buffers near rivers in key areas that have nutrient problems, there is quite a lot of evidence that that would make a sizable difference. We have to look at being quite precise with the individual location and work out the answer. It will be different in different locations, having analysed it ourselves for some of our own work.

Q528 **Chair:** The River Wye and Usk catchment, which is adjacent, is Welsh Water primarily. We had a significant debate in one of our previous evidence sessions about the challenges in the Wye and about the phosphate pollution that has come in particular from high-intensity poultry farms in that area. Is the time coming when we should establish nutrient budgets for catchments?

Liv Garfield: We would have to look by location. At the River Wye, four poultry farms are triggering a significant issue. We have to look at that and ask if that could be done in a different manner. If the best way is a nutrient budget, maybe that is the answer. It is tricky. I tend to find that UK geography is so different across different locations that a single answer is unlikely to fit all. The dilemma you have as the Committee is to try to work out the 80:20 rule. How do you go after a number of things that make a sizeable difference to a lot of the catchment? Accept you probably cannot fix all. You probably cannot go after the 14 SSSIs. That has to be done by Natural England. But what can you implement and make a difference on that makes river quality better for the mass?

Sarah Bentley: A number of people have talked about local collaborative solutions. I am excited about that for the future. We have huge challenges, as I have shared with the Committee already this afternoon, about our here and now. But if I look at our smarter water catchments—and we might need to work on the branding to make that slightly easier to say—a range of different stakeholders are looking at a range of different outcomes, nutrients being one of them, flooding, which we have not touched on today, and also sewage and abstraction. All these parties get together for a 10-year plan about what they want in the catchment, with funding those coming together, whether it is local authorities, other businesses in the area or developers, and bringing these parties together.

It is interesting that with those models we are evolving at the moment—and if they are successful as others have found success—everybody is signing up to hard targets. It not just a directional, "Let us make it better". All the parties participating are signing up to hard targets. I am excited about the three that we have at the moment. Whether it is those

groups working with Windrush Against Sewage Pollution or working with Action for the River Kennet, it is working together with bodies in the local community and businesses in the local community and making sure that we have all agreed what the plan is and then sticking to it and delivering it.

Q529 **Chair:** To all those sorts of groups, you are bogeymen and women of the challenge. We had some statistics about the farming contribution to water quality and that may be the case. It will vary across different parts of the country. But there are 10,000 times as many farmers as there are water companies, if not more. Whatever the multiplier is, there are 10 of you and you are responsible for close to half of the pollution that is ruining our waterways in this country. Should any single thing have been included in the Environment Bill or other legislation that you would like to see that would help you get on top of this issue?

Liv Garfield: I do not want to disagree right at the end, but the evidence does not say that we are responsible for half. The evidence of the RNAG says that we were a long time ago responsible for half and we are now responsible for 23% or 19%, depending on which of the two datapoints. You are right that we are seen as the bogeymen and do need to make sure that we deliver our share of our to-do list so that by 2030 I suspect the sector will have delivered 90% of its remaining 20%. But I like to believe that with all the data and evidence that comes through, that will come out of it.

In terms of what I would ask for, a clear SPS is missing. We want to be seen as a good sector that does the right thing. We have good evidence that we have done lots of positive things in the last 20 years. We want a clear SPS that has clear targets and those targets are funded so there is the evidence and then to be held to account so that when we wake up in 2030 people can say, "The water sector has done its part before every other sector".

Q530 **Chair:** I would very much like you to send us the statistics that you mentioned because we are working on a 40% contribution to the pollution in 2020. If you have some other information, we would like to see it. Thank you. Does anybody else want to make a final comment? I do not need it from everyone.

Heidi Mottram: To add because you were looking for solutions there, last week Water UK—that is all of us—suggested that we have a national rivers strategy and we work together collaboratively with all the contributors to this issue. The message you probably have had from us is we want to play our part but there are other parts. We know the value of partnership working. We would like the Committee to back a national rivers strategy and collaborative working to see how we could improve things in the round. That would be good to take forward in the Bill.

Chair: Thank you. That is a good point at which we can conclude, so I will finish the session. Thank you very much indeed for joining us today,

Heidi Mottram, Sarah Bentley, Ian McAulay, Susan Davy and Liv Garfield. Thank you to the Committee for joining us from wherever you are and to our Clerks, in particular Nick Davies and Ian Barker, who wrote our brief.