



**Cynulliad Cenedlaethol Cymru
The National Assembly for Wales**

**Pwyllgor Deddfwriaeth Rhif 1
Legislation Committee No. 1**

**Dydd Iau, 7 Hydref 2010
Thursday, 7 October 2010**

Cynnwys
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Cofnodir y trafodion hyn yn yr iaith y llefarwyd hwy ynnddi yn y pwyllgor. Yn ogystal, cynhwysir cyfieithiad Saesneg o gyfraniadau yn y Gymraeg.

These proceedings are reported in the language in which they were spoken in the committee. In addition, an English translation of Welsh speeches is included.

Aelodau'r pwyllgor yn bresennol
Committee members in attendance

Eleanor Burnham	Democratiaid Rhyddfrydol Cymru Welsh Liberal Democrats
Rosemary Butler	Llafur (Cadeirydd y Pwyllgor) Labour (Committee Chair)
Chris Franks	Plaid Cymru The Party of Wales
Val Lloyd	Llafur Labour
Rhodri Morgan	Llafur (yn dirprwyo ar ran Ann Jones) Labour (substitute for Ann Jones)
Nick Ramsay	Ceidwadwyr Cymreig Welsh Conservatives

Eraill yn bresennol
Others in attendance

Mike Davis	Cyfarwyddwr Cynllunio, Dŵr Cymru Director of Planning, Dŵr Cymru
Ronnie King OBE	Is-gadeirydd, Y Rhwydwaith Chwistrellu Tân Cenedlaethol Vice-chair, National Fire Sprinkler Network
Syr/Sir George Pigot	Y Rhwydwaith Chwistrellu Tân Cenedlaethol National Fire Sprinkler Network
Keith Pratley	Dŵr Cymru Dŵr Cymru

Swyddogion Cynulliad Cenedlaethol Cymru yn bresennol
National Assembly for Wales officials in attendance

Stephen Davies	Cynghorydd Cyfreithiol Legal Adviser
Claire Griffiths	Dirprwy Glerc Deputy Clerk
Ben Stokes	Gwasanaeth Ymchwil yr Aelodau Members' Research Service
Liz Wilkinson	Clerc Clerk

Dechreuodd y cyfarfod am 9.30 a.m.

The meeting started at 9.30 a.m.

Cyflwyniad, Ymddiheuriadau a Dirprwyon
Introduction, Apologies and Substitutions

[1] **Rosemary Butler:** Good morning, everyone, and welcome to today's meeting. We have received apologies from Ann Jones, for whom Rhodri Morgan is substituting. As you are aware, of course, we are discussing a Measure proposed by Ann. I remind everyone that we operate bilingually and that you can use the headsets to hear the translation of Welsh into English or as an induction loop to hear the whole proceedings more clearly. I remind everyone to turn off their mobile phones and other electronic devices as they interfere with the broadcasting and translation equipment. If there is a fire alarm, it will not be a practice,

and the ushers will escort us from the room. There is no need to touch the microphones, as they will be switched on remotely for you.

**Mesur Arfaethedig Diogelwch Tân Domestig (Cymru)—Cyfnod 1, Sesiwn
Dystiolaeth 3
The Proposed Domestic Fire Safety (Wales) Measure—Stage 1, Evidence Session
3**

[2] **Rosemary Butler:** The purpose of today's meeting is to take oral evidence from Dŵr Cymru and the National Fire Sprinkler Network in connection with the Proposed Domestic Fire Safety (Wales) Measure. We will take evidence from Dŵr Cymru first. I welcome Keith Pratley, who, until the beginning of September last year, was the water regulations manager at Dŵr Cymru. I understand that you are not retired, but that you have been redirected or recycled—

[3] **Mr Davis:** Yes, it was one of the shortest retirements in Welsh Water's history. [*Laughter.*]

[4] **Rosemary Butler:** So, you have been brought back. I also welcome Mike Davis, who is the director of planning for Dŵr Cymru. Welcome, gentlemen. We have a series of questions to ask you. When we have finished, if there is anything that you feel you would like to add, feel free to do so.

[5] **Mr Pratley:** Just to clarify things, I am retired from employment by Welsh Water and I am working today as a consultant for Welsh Water.

[6] **Rosemary Butler:** Thank you. In your evidence, you stated that it was not appropriate for Dŵr Cymru-Welsh Water to comment on the question of whether there is a need for the proposed Measure. For the record, can you set out your reasons for saying this?

[7] **Mr Pratley:** We feel that the decision on whether sprinkler systems should be installed lies primarily with the Assembly. However, we are obviously anxious to help in any way that we can to ensure that, if the Assembly passes the legislation requiring sprinklers to be installed, we make every effort to ensure that they are installed and work in the manner that customers expect them to work.

[8] **Chris Franks:** In your evidence, you indicate that, once the proposed Measure is in force, it will be 13 years before 10 per cent of the housing stock in Wales has a sprinkler system installed. Am I right that, given that it will take such a long time to make any difference, you are asking whether it is worth pursuing this? Or are you just stating that as a fact?

[9] **Mr Pratley:** I am saying it as a statistician, really. Again, it is not for Dŵr Cymru to try to influence the Assembly, but I felt that, as a statistician, I should just point out that, yes, it will obviously be a long time before any effect is seen. An average of 18 people a year die in domestic fires in Wales, so, given that it will be 13 years before 10 per cent of the housing stock has sprinklers, in 13 years' time, there will be an expected 10 per cent reduction in fatalities. So one could expect the figure of 18 to drop to 16 in 13 years, with a reduction of a further two people every 13 years beyond that.

[10] **Chris Franks:** Every life is valuable, obviously—

[11] **Mr Pratley:** Every life is valuable.

[12] **Chris Franks:** No-one is suggesting that you are not saying that, but on a cost-benefit analysis, are you saying that the money could be better applied elsewhere and save more lives?

[13] **Mr Davis:** That is difficult for us to answer, because we are obviously not qualified to comment on a cost-benefit analysis with regard to a person's life.

[14] **Chris Franks:** Okay. With regard to water costs, the explanatory memorandum states that, as the supply of water for domestic use is a requirement on Dŵr Cymru, such costs are not assumed to have a significant impact in Wales. Is that a fair assessment?

[15] **Mr Pratley:** I felt that it was important to put some numbers against that statement. We did considerable work to calculate how much extra it would cost Welsh Water to provide the additional water supply for sprinkler systems. You will see on page three of my submission, under question four, that we have given you extra costs for four quite common situations. The most common situation with new housing is probably the first one: a brand new housing site, where the roads have not been adopted and surfaced and the house builder lays the pipe across the road. That is the most common, but a considerable number of new houses are connected adjacent to existing roads. The further figures below—£763, £893 and £976—would apply in those different situations. Those costs allow for just 2m of pipework; there is then an additional cost for every extra 1m that the pipe has to be laid from the main to the supply point at the edge of the highway.

[16] **Chris Franks:** The Water Industry Act 1991 defines a supply for a sprinkler system as a 'supply for non-domestic purposes' and says that

[17] 'such a supply is given on such terms as the water undertaker may agree with the applicant'.

[18] Does this mean that all costs incurred by Dŵr Cymru in upgrading a water supply for a sprinkler system would be charged directly to the developer?

[19] **Mr Pratley:** That is correct, yes.

[20] **Chris Franks:** So, a developer building a new estate would receive a larger invoice from you for including a sprinkler system.

[21] **Mr Pratley:** If the developer chose to design a system that relied on a large rate of flow from the main, that would be the case. As with all other water companies, Welsh Water recommends that the householders have a tank and a pump. That tank could be fed from the domestic water supply pipe, and no increased charges would be incurred by Welsh Water.

[22] **Eleanor Burnham:** Can you clarify exactly what you mean by that? What is the general principle by which a development occurs these days? You have just mentioned a pump and a central tank; is that what would automatically happen or does that differ from how a water supply is usually brought to a development? I shall rephrase that. Would you expect a canny developer not only to be able to provide a system, if we legislate for this, but also to think beyond the box and design a system where you would have a central supply and a pump on a development specifically for sprinklers?

[23] **Mr Pratley:** There are two questions there, and I will answer both of them. The water supply system would be designed to supply the houses with water for domestic purposes and for sprinklers. If the standard domestic supply is not adequate for a sprinkler supply, to get the water from the main in the road to the house, extra costs would be incurred, which I have detailed. The developer could decide, instead of paying that cost, to put a tank and a pump

within the property boundary and fill that at a trickle rate from the domestic supply, and that water would then sit there waiting for a fire. So, he really has to weigh up the cost. Most installers consider that to be a more expensive option. I am not convinced about that, but I am not an expert on installing tanks, pumps and sprinkler systems. It is for the people who design those systems to find out how much they would cost.

9.40 a.m.

[24] **Eleanor Burnham:** So, there are two ways of doing it: you could bring the water into each house independently, or you could have a communal tank for the sprinkler system in the development. Is that what you just said?

[25] **Mr Pratley:** No, I was thinking of individual households, where each house would have its own tank. A communal system would be fairly rare, but it might be possible for a block of flats run by a single management company—then you might be able to have a combined system. However, where each individual household is separate, they really would need to have to their own tank and pump.

[26] **Rhodri Morgan:** We need fewer politicians and more plumbers here this morning. I think that we all feel at a disadvantage. There is a big gap between, on the one hand, the explanatory memorandum and the evidence of the fire officers and the Member who is promoting this proposed Measure, Ann Jones, and, on the other hand, what you are saying. The explanatory memorandum, the fire officers and the Member all say that, if you can have a shower in a house, then you can have a fire sprinkler—and at a cost so insubstantial that it does not need to be counted. What you are saying is quite different from that. You are saying that it would require a separate main, or at least a header tank and/or pump. Could you explain why there is this mile-wide gulf between the evidence of the fire officers and the Member and your evidence? They say that, if you can have a shower, then you can have a fire sprinkler, simple as that, with no problem except on rare occasions where the pressure is poor, or the design of the house means that the loft space lacks the height for the header tank, in which case you have to make some special provision—and those cases will mostly occur in one-off, individually designed houses. You are saying, ‘No, all houses will have to have either additional mains capacity or an additional header tank and pump’. So, according to your analysis, it is not the case that anyone who can have a shower can have a fire sprinkler, no problem. How do you explain that difference, because we are baffled?

[27] **Mr Pratley:** The key is that the flow to a fire sprinkler is very high—probably eight times the flow that you would normally supply to a house. A flow of 84 litres per minute is required by the British standard as a minimum. That would not go through a standard domestic house meter.

[28] **Rhodri Morgan:** Do you mean a house meter, or a main?

[29] **Mr Pratley:** A lot of houses have meters, and more and more—

[30] **Rhodri Morgan:** What proportion of houses have meters?

[31] **Mr Davis:** All new houses.

[32] **Rhodri Morgan:** So, it is obligatory for new houses to have meters.

[33] **Mr Pratley:** Yes. So the flow to a fire sprinkler would not go through a domestic house meter, which is purposely of a small size in order to accurately measure low flows, so that the customer gets an accurate bill. So, from the pavement, you would have to have a second pipe going across the garden. Most water companies are saying that that would have

to be metered. Welsh Water is prepared to take the risk of not putting a meter in, which would create problems. First, there is a risk of abuse, which makes it difficult to detect any leaks on the pipe. We are under strong pressure from Ofwat to reduce leakage, and we use meters where no-one is using water as a means of detecting them. In order to support the sprinkler system, we are prepared to put in a second, larger pipe from the pavement to carry the 84 litres of water a minute.

[34] **Rhodri Morgan:** So, you do not believe the proposition that the fire officers put to us that, if you can run a shower, you can run a fire sprinkler?

[35] **Mr Pratley:** No.

[36] **Rhodri Morgan:** Would that apply also if you were installing a power shower, or are power showers invariably pump-fed and it therefore does not really matter what the water pressure is because the pump will drive it anyway?

[37] **Mr Pratley:** A sprinkler system needs a minimum of a 5m head of water. Imagine that you have a tank that has to be 5m above the sprinkler head on the ceiling of a bedroom. It is not practical to have a tank in a house 5m higher than the bedroom ceiling. You would also have to have enough pressure in the pipe at that point where water would rise 5m higher than the house. There is a lot of pressure loss in getting the water from the mains to the sprinkler head. Given the very high rate of water flow required, and the amount of pressure lost between the mains and the sprinkler head, you would have to have a lot of pressure in the mains to allow for the loss of pressure.

[38] **Rhodri Morgan:** To give us some idea, what are the flow rates for a normal shower, a power shower, and a fire sprinkler?

[39] **Mr Pratley:** A shower is in the order of 8 litres a minute. I have a gravity shower, which is fed from a tank in the loft, and that gives only 1m of pressure. I think that ours runs at 3.5 litres a minute. It is quite low, but we are quite happy with that. The power shower probably runs at 8 to 10 litres a minute. That is pumped. Sprinkler systems need 84 litres a minute between two sprinkler heads, which means 42 litres a minute to each sprinkler head simultaneously.

[40] **Rhodri Morgan:** So, there is a big difference. Do you think that the proposition that, if you can run a shower, you can run a sprinkler is not correct?

[41] **Mr Pratley:** It is not correct.

[42] **Rhodri Morgan:** Also, the redundancy in the mains pressure that enables you to run a shower—that is, not a power shower, but a normal, gravity-fed shower—means that there is not much redundancy, or further pressure, available to run a sprinkler from the normal mains. We are not talking about low-pressure areas, but normal mains in new housing developments. This means that you could not do this as easily as having a shower. You are saying that that is not the case.

[43] **Mr Pratley:** There is no way that you could get that flow of water through the pipework that is currently installed between the water mains and the house.

[44] **Rhodri Morgan:** In the days before it became obligatory to have a water meter in a new house, would the same problems have arisen, or is the choke the metering system? Is that what has caused this problem?

[45] **Mr Pratley:** No. Even without the meter, because of the size of the pipes, they would

not carry that flow of water. It just would not go through.

[46] **Rhodri Morgan:** Can you just give us an idea of the degree to which it would fall short, even if we were to go back to the days before it was obligatory to have a water meter in a new house?

[47] **Mr Pratley:** It would just dribble out. You would probably get, I am guessing, only about 35 litres a minute through the sprinkler head if you install the size of pipe currently used. It has been suggested that the pipe work is increased—

[48] **Rhodri Morgan:** Imagine that the obligatory fitting of a water meter for a new house did not exist—

[49] **Rosemary Butler:** It does exist, though. That is the problem.

[50] **Rhodri Morgan:** Yes, I know, but I am just trying to get the picture in my mind. If this situation had not occurred, would the problem still arise, and to what degree would the problem still arise if the obligatory water metering did not exist?

9.50 a.m.

[51] **Mr Pratley:** The removal of the water meter would have very little effect on the flow that will come out of the existing pipeline.

[52] **Rhodri Morgan:** It would not be close?

[53] **Mr Pratley:** It would not be anywhere near.

[54] **Eleanor Burnham:** I do not want to tread on anyone else's questions because I know that we are short of time.

[55] **Rosemary Butler:** Just try to stick to this point, because we have already covered a couple of questions.

[56] **Eleanor Burnham:** I am quite concerned, because it is the first time that we have discovered that this pressure will be intense. If there was malfunction of the system and there was no fire, you could have a considerable flood because of the vast quantities of water and huge pressure.

[57] **Mr Pratley:** You could, but I am assured that the risk of a malfunction is minimal.

[58] **Mr Davis:** One of the potential concerns that we have is that the water in a sprinkler system would be stagnant water for most of the time, fingers crossed. The fact that it is directly connected to the mains gives rise to a risk of contamination to the water supply.

[59] **Eleanor Burnham:** I have a question on that. Shall I ask it now?

[60] **Rosemary Butler:** I want to ensure that everyone has finished with this point.

[61] **Mr Pratley:** A concern that needs to be appreciated is that, because we are going to have to put in a larger connection to the main, if there is a failure of the main, it will cause more damage to the highway and infrastructure because a lot more water will come out. That is one of the risks of the system. Because there will be many more pipes and joints, the leakages are likely to increase.

[62] **Eleanor Burnham:** In view of the fact that local authorities will be constrained for moneys for highway maintenance, could this be an issue?

[63] **Mr Pratley:** No, it is something that we would have to repair, and it would therefore be an increased risk and cost to Welsh Water and its customers by having the extra pipework and joints.

[64] **Nick Ramsay:** You say that you need a larger main for the extra pressure for the sprinkler system—

[65] **Mr Pratley:** I am talking about a pipe from the main to the house.

[66] **Nick Ramsay:** It is getting quite technical, is it not? So, are you saying that in a new development you would have a larger pipe for a sprinkler system, and a separate supply for everything else in the house, or would that be combined in a larger pipe coming off the mains to begin?

[67] **Mr Pratley:** Yes, it would be one larger pipe from the main to the pavement, the service pipe, and it would then split in the pavement and go into the garden in two pipes. So, there would then be one domestic supply pipe and one sprinkler supply pipe.

[68] **Nick Ramsay:** On the domestic supply, would one go through the meter while the other would not, necessarily?

[69] **Mr Pratley:** It would not go through a meter at all, no.

[70] **Rosemary Butler:** Rhodri, have you finished?

[71] **Rhodri Morgan:** Yes.

[72] **Rosemary Butler:** I think that question 9 has been answered, Val.

[73] **Val Lloyd:** I want to pick up on what we have here as question 8. As you know, the proposed legislation is meant to apply to new builds and conversions, and my question is related to conversions. When the chief fire officers came to give evidence to us, they said that it was the provision of the mains water supply to existing premises that are being converted, rather than the mains water supply for new housing developments, that will prove challenging to the water industry. Do you consider this to be a fair assessment? Can you explain the reason for your answer, whether it is 'yes' or 'no'?

[74] **Mr Pratley:** It will be more difficult, because you are moving into the more expensive of the four costs that I have listed, because you are dealing with highways, so the costs go up in that respect. If the existing main in the highway is fairly small, it may not be possible to do a pressure tapping on that main, which would mean that we would have to shut the main down to the area, and put a cut in a 'tee'. So, shutting the main down, draining it, notifying all the people that are supplied from it and re-sterilising the main afterwards all push up the cost. I am not saying that that will happen every time, but that is one of the risks. You have seen the report, in which we talk about the experiment that we undertook in Port Talbot a few years ago. One reason why the costs were quite high was the fact that we had to shut the main down, which was a much more major job.

[75] **Val Lloyd:** We have heard other evidence about that development. Could you explain the water supply and pressure issues that may require developers to install a storage tank or pump in each dwelling or require you to install additional piping? I think that you have probably touched on that, but if you could, just encapsulate it in an answer.

[76] **Mr Pratley:** The issue would be whether there is space. Many houses have a garden, and I would see no problem in siting the tank in the garden or under the surface of the garden. Where there is no land, that would be an issue and you might have to put the tank in the basement or create a hole underneath the ground floor and put the tank into it.

[77] **Val Lloyd:** Are there water supply and pressure issues that apply consistently throughout Wales, or are there areas where neither a storage tank nor additional piping would be needed for the fire suppression system to operate effectively from the mains?

[78] **Mr Davis:** It varies greatly from location to location. There are some areas where we have an issue with low pressure, which we are planning to deal with. The wider issue in this respect is that, over the last 15 years, we have cut the amount of leakage from our network by over half. A key way in which we do that is to reduce pressure. One thing that we are conscious of with this sort of proposed Measure is that if there is a new standard for the pressure that is required in the pipes, it might have an impact on our ability to minimise leakage from the network. There is obviously a cost associated with leakage, but there is also an environmental issue in that, even currently, we end up losing, through our pipes, around 20 per cent of the water that we treat. On how we would tackle or reduce that, one tool that we have is pressure management. We would be concerned that a new standard for pressure would take away one of those tools.

[79] **Rosemary Butler:** Eleanor, is your question on the same point?

[80] **Eleanor Burnham:** Yes. Surely—

[81] **Rosemary Butler:** Sorry, hold on, Eleanor. Did you want to come in on that, Mr Pratley?

[82] **Mr Pratley:** To add to that and to put figures on it, Ofwat's standard is that we should have a 10m head of water at the supply point on the pavement. Ofwat would love it if every house in the country had just 10m of water pressure in the main. That is its standard. However, for a sprinkler system to work, because of the head losses going through the system, you will need something like 20m at that point.

[83] **Eleanor Burnham:** This is rather a fatuous argument because surely the way to reduce leakages is to improve the pipes.

[84] **Mr Davis:** That is absolutely right. That is the ideal solution, but we have 19,000 km of pipes, some of which have been in the ground for 50, 60 or 70 years. The cost of replacing all of those pipes would amount to something like £11 billion.

[85] **Eleanor Burnham:** There would be no profit for your company.

[86] **Rosemary Butler:** That is not the issue.

[87] **Mr Davis:** On that point, Welsh Water is owned by Glas Cymru, which is a not-for-profit company.

[88] **Eleanor Burnham:** Thank you for reminding us.

[89] **Rosemary Butler:** Rhodri Morgan has the next question.

10.00 a.m.

[90] **Rhodri Morgan:** On that point, you say that you came under pressure—sorry, excuse the pun—from Ofwat to reduce the pressure, because in reducing it you force less water out through the pin holes and so forth, which is a cheap way to reduce leakage. What was the percentage by which water pressure in Wales was reduced? Can you give us a very rough figure? Was it reduced by, say, 10 per cent or 25 per cent since Ofwat started saying that a quick way to reduce leakage was to reduce the average pressure in the system?

[91] **Mr Davis:** Let us go back a bit and say that Ofwat does not give us guidelines or instructions or targets in that respect.

[92] **Rhodri Morgan:** Perhaps I misheard you. Someone told you to reduce pressure as a quick way to speed up your leakage reduction. Who was that? By how much did you respond?

[93] **Mr Davis:** This is going back to privatisation, so it has been in place for 20 years with regard to reducing leakage. How we go about it is a matter for the company, and we choose the most cost beneficial way of doing it. I cannot answer today how much we have reduced the pressure by—

[94] **Rhodri Morgan:** Can you give us a very broad-brush figure? Looking back to a time before reducing water pressure to speed up the reduction in leakage was part of the equation, even if it goes back 22 years to privatisation, what is the difference between average water pressure now and average water pressure before you were put under pressure—I cannot think of another word—to reduce average water pressure? Are we talking about halving the water pressure, reducing it by a quarter, 10 per cent, 5 per cent, 2 per cent or what? Remember that we are amateurs here.

[95] **Mr Pratley:** I am not evading the question. It is almost impossible to say.

[96] **Rhodri Morgan:** Can you provide the answer in writing?

[97] **Mr Pratley:** Most of the area between the Severn bridge and Swansea, all along the coastal plain, is pressure managed, because it is relatively flat. All new estates have pressure management. The aim is to get the pressure at those properties at 10m, right the way along from the Severn bridge to Swansea. Obviously, when you get into the Welsh Valleys, where it is very hilly, it is very difficult to do pressure management and you could probably say that there has been no change in those areas. However, where the land is flat, we have made big changes. I do not know what it was before we brought it down.

[98] **Rhodri Morgan:** Is there anyone who has been working in the industry for a sufficiently long time to give us a rough idea of what it was like before pressure management started?

[99] **Mr Pratley:** I will see whether I can get a figure for you.

[100] **Rosemary Butler:** May I just stop this? It is very interesting, but I do not think that other Members see it as relevant to what we are talking about this morning, Rhodri.

[101] **Rhodri Morgan:** I do not want to cross swords with you, Chair—

[102] **Rosemary Butler:** Far from it—

[103] **Rhodri Morgan:** Let me just give you the reason for the question. My point is this: if you were not pressure managing, would that solve the problem of the low water pressure making it difficult to provide sufficient pressure to feed the water sprinklers?

[104] **Mr Davis:** It could in some areas.

[105] **Rhodri Morgan:** That is the relevance.

[106] **Mr Davis:** The water pressure varies enormously across the network. In some areas there is very high pressure, and in some areas it is very low. It is quite difficult to give an average. You are absolutely right that if we were to remove the pressure management in certain areas, the pressure would increase. We will have to come back to you on whether it would increase sufficiently for the sprinkler systems to work. The important point is that if we were to do that, we would simply be moving a problem somewhere else. We would then have more leaks, more bursts and a bigger risk of interruption to supply. So, although there would be pressure most of the time for the sprinkler systems, the risk of a complete loss of pressure due to bursts or leakage would come into play.

[107] **Mr Pratley:** We are not doing pressure management instead of mains replacement. We are replacing mains as fast as the Government will allow us to, but the targets for waste reduction exceed the amount that replacement will achieve. So, in order to bring waste down more rapidly than will be achieved with mains replacement, we are having to look at other ideas—the most obvious of which is to reduce the pressure to the level that Ofwat requires. When we put new mains in, they are being designed so that they will give a pressure of 10m to those new houses. They are not big mains, but smaller mains, so eventually there will be less need to reduce the pressure. There will be smaller mains in the ground.

[108] **Mr Davis:** Another reason for reducing the pressure is not just the leaks on our side, but the leaks on the customer's side of the network as well. We also aim to ensure that water is used efficiently. If you have high pressure in the household, more water will come through the taps. It is all part of a combined overall strategy for using water efficiently, by customers and ourselves.

[109] **Rosemary Butler:** The background noise is a little distracting. There is a video conference going on next door and I think that whoever is at the other end of the video link does not have his pressure right and the sound is coming in too loudly. Nick Ramsay has the next question.

[110] **Nick Ramsay:** The proposed Measure provides for Welsh Ministers to prescribe in regulations the requirements that automatic fire suppression systems must comply with. Are you content with this approach, or would you prefer to see a more detailed requirement on the face of the proposed Measure?

[111] **Mr Pratley:** Sorry, could you repeat that? I do apologise.

[112] **Nick Ramsay:** It took me a while to work it out. [*Laughter.*]

[113] The proposed Measure provides for Welsh Ministers to prescribe in regulations the requirements that automatic fire suppression systems must comply with. To paraphrase, do you think that the proposed Measure should be more detailed so that there is less ambiguity in it? I am not sure whether this is really relevant.

[114] **Mr Pratley:** As long as the regulations are looked at in detail and Welsh Water consulted on the parts of the regulations relating to the water supply, I am sure that we are quite happy with that arrangement. I can see the advantage, in that it is easier to change regulations than a Measure. To a great extent, we are all on a learning curve. We have little practical experience of fire sprinklers in Wales. We rarely have contact from the sprinkler installers to let us know that they are being installed. We are on a learning curve.

[115] **Nick Ramsay:** In evidence to the committee, the Minister has made it clear that, in the event that this proposed Measure comes to fruition, further consideration of the costs and benefits, and of its wider implications, will need to be undertaken before making a decision to bring forward regulations to give effect to the proposed Measure. Do you think this is a reasonable approach? Does this help to address any concerns that you may have about the practical and financial implications of the proposed Measure? In other words, the Minister has said that, if the proposed Measure is passed, any issues or problems that we are talking about here will be kept under review and a cost-benefit analysis will be carried out. Would that alleviate any concerns that you have about the problems that we have talked about today?

[116] **Mr Pratley:** Yes, we are quite happy with that.

[117] **Nick Ramsay:** I have one question on maintenance. The committee has received conflicting evidence about the ongoing maintenance requirements of sprinkler systems. While some witnesses suggest that maintaining systems would be straightforward, others are concerned that it would have significant practical and financial implications. How important is it for these systems to be properly maintained?

[118] **Mr Davis:** I have already mentioned that water quality and stagnant water is a concern for us. The sprinkler system would need to be maintained in such a way that there is not contamination back into the main supply. Also, our customers generally contact us on almost anything to do with water, so although it is quite clear in the proposal that this would not be a Welsh Water obligation, we would anticipate a huge volume of calls coming into Welsh Water and expectations from our customers that we were responsible for the systems. That is a concern for us. Having clear responsibilities for maintenance and processes for ensuring that it happens are important considerations.

10.10 a.m.

[119] **Nick Ramsay:** You mentioned the specific contamination issue of water in the system going back into the mains supply. What sort of maintenance would be involved in keeping the system running it as it should?

[120] **Mr Pratley:** There will need to be a check valve close to the pavement just inside the customer's property to prevent the stagnant water from flowing back into the public water supply. The customer is responsible for ensuring that that check valve works properly at all times. It has been suggested that the valve should be checked or replaced at least once every five years, and it is so important that that happens.

[121] **Nick Ramsay:** If that is so important, do you think that the proposed Measure should contain an explicit statement that there should be an obligation for it to happen every five years, as you said?

[122] **Mr Pratley:** It is suggested that the valve should be changed every five years where that is particularly crucial, and, in that situation, I would think that it is.

[123] **Nick Ramsay:** Would you prefer that requirement to be left to regulations, or should it be included in the proposed Measure?

[124] **Mr Pratley:** As long as it is included in either one, I would be very happy.

[125] **Nick Ramsay:** I have one final point to make, Chair. I do not want to veer too much into the issue of contamination, because I know that Eleanor has a question on it. On the effectiveness of the proposed Measure, what it will achieve, ultimately, is that if there is a fire

in a new-build house, a sprinkler system will operate and will put out the fire. Aside from the valve issue that you have mentioned, if there is not any other ongoing maintenance, would there be a danger that the proposed Measure would not achieve its aim, in that a sprinkler system could fail to operate as a result? Or is that unlikely to happen?

[126] **Mr Pratley:** I am not an expert on sprinkler systems, but, as for most things, if maintenance is not carried out, you cannot rely on the system working. Where a pump is involved, it is important that it is maintained. The pump could, perhaps, be operated once a month to ensure that it works; I believe that that function could be built into the system automatically.

[127] **Mr Davis:** It is important to recognise that sprinkler systems do not fall within our area of expertise, so we cannot comment on how best to maintain them.

[128] **Eleanor Burnham:** I symud ymlaen o gwestiwn Nick am gynnal a chadw, pwy yn union fydd yn edrych ar y falf hon? Pwy fydd yn gwneud y gwaith cynnal a chadw? Ai chi, fel cwmni dŵr sy'n cyflenwi'r dŵr fydd yn gwneud hyn, neu'r cwmni a fydd yn rhoi'r adnoddau taenellu yn y tŷ?

Eleanor Burnham: To move on from Nick's question on maintenance, who will be inspecting this valve? Who will be undertaking the maintenance work? Will you, as the company that supplies the water, be doing this, or will it be the company that installs the sprinkler system in the house?

[129] **Mr Pratley:** The homeowner is responsible for organising the maintenance.

[130] **Eleanor Burnham:** Fodd bynnag, yn dechnegol, bydd y Mesur arfaethedig hwn—pe bai'n dod i rym—yn beth hollol newydd, felly a fydd cwmnïau'n cael eu sefydlu fel arbenigwyr yn y gwaith cynnal a chadw hwn os nad ydych chi yn ei wneud? Pwy fydd â'r cymwysterau arbennig sy'n addas i wneud y gwaith hwn?

Eleanor Burnham: However, technically speaking, the proposed Measure will—should it come into force—be something totally new. Will companies be established as experts in this maintenance work if you do not do it? Who will have the specialist qualifications required to undertake this work?

[131] **Rosemary Butler:** It is not these witnesses' responsibility to say.

[132] **Eleanor Burnham:** I am asking who they envisage will be responsible.

[133] **Rosemary Butler:** It is not for Welsh Water to decide that.

[134] **Eleanor Burnham:** It is an important question.

[135] **Rosemary Butler:** It is not a question for Welsh Water; it will be for the next witnesses or the fire brigade to answer.

[136] **Eleanor Burnham:** Ynglŷn â materion sy'n ymwneud ag ansawdd y dŵr, mae pryderon wedi'u nodi mewn tystiolaeth am y risg o'r bacterium Legionella yn ymddangos, sy'n achosi clefyd y llengfilwyr, a all dyfu mewn systemau llethu tân awtomatig pan fydd dŵr a gedwir mewn tanciau storio heb ei ddefnyddio. Yr ydym wedi clywed am achosion o'r fath yn digwydd yn ddiweddar nid nepell o'r fan hon. Felly, mae'n amserol inni drafod y mater. A

Eleanor Burnham: On issues relating to water quality, concern has been raised in evidence about the possible risk of the bacterium Legionella appearing, which causes legionnaire's disease, and which can grow in automatic fire suppression systems in instances where water is left unused in storage tanks. We have heard of such instances recently not far from here. Therefore, it is timely that we discuss the matter. Do you think that this is a valid

ydych o'r farn bod hwn yn fater o bryder? concern?

[137] **Mr Pratley:** I am not an expert on legionnaire's disease, but I have researched this, anticipating this question. Theoretically, the bacteria that cause legionnaire's disease could develop in the pipework. The bacteria require the temperature of the water in the pipework to rise above 25 degrees, at which point they start to develop, and they develop quite profusely at around 37 degrees. Therefore, you can imagine that the bacteria could develop in pipework in the loft of a house. That would be one of our concerns with regard to any backflow of water. The suggestion is that the main risk is to people who maintain systems, if they allow a discharge at any point, and you have the aerosol problem for the maintenance people. I am not sure how the maintenance of sprinkler systems is done, so I am not sure whether that is a problem. If there is a fire, I would imagine that people would evacuate the building quite rapidly, and the chances of them picking up legionnaire's disease from the spray would be very small.

[138] **Mr Davis:** From our perspective, there are other bacteriological risks arising in stagnant water. It would be things such as E. coli, for example, which would be the bigger risk. Keith might correct me on this, but we do not generally have a risk of Legionella in the water supply.

[139] **Eleanor Burnham:** There was another bacterium—chloridium something or other—in north-west Wales.

[140] **Mr Pratley:** Cryptosporidium.

[141] **Eleanor Burnham:** Cryptosporidium. I beg your pardon.

[142] **Mr Davis:** That does not arise in stagnant water; it can occur in the catchment for the reservoir. An outbreak is as a result of organic material getting into the water supply.

[143] **Eleanor Burnham:** Therefore, you would not envisage that being a problem.

[144] **Mr Davis:** There would not be an additional risk of a Cryptosporidium outbreak.

[145] **Eleanor Burnham:** Yn eich tystiolaeth, yr ydych yn nodi ei bod yn bosibl, ond yn anhebygol ar hyn o bryd, y byddai'n rhaid codi tâl blynyddol ar y cwsmer er mwyn cynnal a chadw offer taenellu'r cwmni dŵr. O dan ba amgylchiadau y gellir codi tâl o'r fath, ac a fyddai modd rhoi rhyw amcangyfrif o'r gost y gellir ei chodi ar anheddau unigol, sef tai unigol?

Eleanor Burnham: In your evidence, you state that it is possible, but unlikely at this stage, that an annual charge would need to be levied on the customer for maintenance and management of the water company apparatus relating to the sprinkler. In what circumstances could such a charge be imposed, and can you provide an estimate as to the level of charges that could be levied on individual dwellings, that is, individual houses?

[146] **Mr Pratley:** I put that in because, at present, we think that we can absorb the additional costs of maintaining and eventually replacing the apparatus within the company. I felt that I should put it in because, obviously, if the costs become large, we may have to reconsider it, or, if there is pressure from other customers who do not have sprinkler systems having to subsidise the maintenance of our apparatus related to those sprinkler systems, we may have to reconsider.

[147] **Eleanor Burnham:** So, this is quite a complex area.

[148] **Mr Pratley:** Yes. I am merely pointing out that there is additional apparatus in the pavement. I mentioned that there are larger pipes, and therefore, if there is a burst pipe, there will be more damage. There are ongoing costs, which must be paid for one way or another. At present, we think that we can absorb it within our general operating costs.

[149] **Mr Davies:** A good example of that, generally, is metering. The cost of maintaining the meter and reading the meter is borne by metered customers. That cost is not borne by customers in general. The cost of maintaining networks, however, even down to particular streets, irrespective of the actual cost to serve those premises, are borne by and spread out over all customers.

10.20 a.m.

[150] **Eleanor Burnham:** Yn olaf, mae **Eleanor Burnham:** Finally, section 6—
adran 6—

[151] **Rosemary Butler:** I believe that your question has been covered, Eleanor. Does anyone else want to come back on any other points or want any more technical advice?

[152] **Rhodri Morgan:** Could I ask for written evidence, if it can be provided, on by how much pressure has reduced since pressure management started as a technique for reducing water leak problems and also on the other points that were raised on which you said that you cannot answer now but could possibly be answered by people in the office?

[153] **Rosemary Butler:** Thank you very much for answering our questions. If there are any points that you feel that you should have put across or that we have not asked you about, then you can certainly send in further evidence in writing. You will have a copy of the draft transcript to check before it is published. Thank you for coming in this morning. We have certainly learned a lot, and, as Rhodri suggested, we might even enrol on a plumbing course. [*Laughter.*] Thank you very much.

[154] We will now have a short break before we start the next evidence session.

*Gohiriwyd y cyfarfod rhwng 10.21 a.m. a 10.33 a.m.
The meeting adjourned between 10.21 a.m. and 10.33 a.m.*

**Mesur Arfaethedig Diogelwch Tân Domestig (Cymru)—Cyfnod 1, Sesiwn
Dystiolaeth 3: Parhad
The Proposed Domestic Fire Safety (Wales) Measure—Stage 1, Evidence Session
3: Continued**

[155] **Rosemary Butler:** Good morning, and welcome to the second part of this session. We have with us Sir George Pigot and Ronnie King. I am sure that many of you know Ronnie King—and I will not say that you know him ‘of old’, but you will remember him from his former life. Ronnie King is the vice-chair of the National Fire Sprinkler Network, and Sir George Pigot is a member of that network. Thank you for coming. We have a series of questions for you. When we have finished, if there is anything that you feel that we have not covered or you would like included, please feel free to contribute.

[156] Can you confirm for the record whether you support the general principles of the proposed Measure?

[157] **Mr King:** Yes, Madam Chair. A Government’s first duty is to protect its citizens, and I do not think that there can be any better thing for you to consider in Wales, through this

proposed Measure, than to put a halt to the painful and horrible deaths and burns injuries caused by fire. I have failed to stop 150 people from dying and 6,000 people from being burned on my watch. Since retirement, I have been determined to try to put that right. So, I do this work voluntarily and in the best interests of the objective of your proposed Measure.

[158] **Rosemary Butler:** In view of the existing legislation on fire safety, why do you think that automatic fire suppression systems are needed in new residential properties? What do they provide over and above the existing fire safety measures in newly built homes, particularly hard-wired smoke detectors?

[159] **Mr King:** The ‘Wired for Safety’ and ‘Up in Flames’ reports that the Welsh Assembly Government produced were effective, and hard-wired smoke detectors have brought the numbers of fire deaths down and had an impact. The number has begun to plateau, and the latest fire statistics for the past 12 months indicate that, so we need to do more. A sprinkler system is like a magic wand: it will stop people dying. There is compelling evidence from America and elsewhere that, where they have been introduced, people do not die in fires. There has never been a multiple fire death anywhere in the world in premises with a working fire sprinkler system, and that is compelling evidence.

[160] **Nick Ramsay:** Good morning. In your evidence, you suggest that installing automatic fire suppression systems will ‘all but eliminate’ fire deaths and will

[161] ‘reduce injuries and property damage from fire by 80 per cent’.

[162] What evidence do you have to support that?

[163] **Mr King:** Principally the evidence from America. The cost-benefit analysis that was done by the Building Research Establishment did not use all those statistics, but the latest research that the Chief Fire Officers Association is pursuing will take account of evidence from Scottsdale and Vancouver. In 1973, Vancouver had 40 fire deaths a year; 25 years later, with 50 per cent of properties sprinklered, the number of fire deaths was nil. That is itself is evidence. The National Institute of Science and Technology study in America, which will be factored into the new BRE research, indicates that damage to property and injuries would also be reduced by the proportion that we specified, namely 80 per cent, in the case of injuries.

[164] **Nick Ramsay:** To date, the committee has been unable to obtain statistical data about the age and type of properties involved in cases of deaths and injuries from fire in the home. In the absence of evidence about the incidence of death and injury from fire in new housing, how can you be certain that the proposed Measure targets efforts in the right area?

[165] **Mr King:** It is people who cause fires, not buildings, regardless of whether the building is new or old. Earlier this year, six people died in a fire at Lakanal House in London that was caused by a television set, and that building had just had a £3 million investment in fire-safety measures, with many parts of the building upgraded. So, it was virtually a new building, but a television set caused a fire in which six people died. It is not necessarily the buildings, but the people. We have been talking about the socioeconomic groups and the age groups identified in the report by the fire and rescue services in Wales in 2007—that is where we took our information from, on the cause of problems in Wales. We feel that you need to tackle those age groups, but existing properties need to be done separately, as part of a fire authority’s risk assessment. However, you have to start somewhere. People move around, so today you might be tackling someone who has no sense of smell, or is disabled or infirm, but then they move house. You may have sprinklered their property, but they move somewhere else, and so you have to follow them and install another sprinkler. You have to start somewhere; otherwise, you will be shopping around to see where you have installed sprinklers. So, if this is done for all new builds, that is a start, and that is where we think you

should start.

[166] **Chris Franks:** You produced some impressive statistics on the drop in fire deaths. Which area was that again?

[167] **Mr King:** Vancouver.

[168] **Chris Franks:** Are we comparing like with like? Does Wales have the same type of housing as Vancouver? I imagine that there are significant differences. Can we directly correlate that to our situation?

10.40 a.m.

[169] **Mr King:** All that we can correlate is the fact that it was the sprinklers that made the difference. We know that some 50,000 sprinklers a year are being fitted in this country. Where they are being fitted, there is no evidence of fire deaths or of serious burns. So, they are effective. We have that evidence only because it has been done on that scale only in Vancouver, and so we know that they have been effective there.

[170] **Chris Franks:** That is useful. I have tended to focus on fire deaths, but you have mentioned serious injury. Is there a similar significant improvement in the serious injury rates in Vancouver?

[171] **Mr King:** Yes.

[172] **Chris Franks:** So, there is a reduction in fatalities and in serious injuries.

[173] **Mr King:** Yes. In fact, I think that it is even more concerning, because the cost-benefit analysis that the BRE undertakes and that the Government works to is that a fire death costs £1.5 million. In America, it is much higher than that. They value a life much more highly than we do. That is strange. In order to say whether it is justified, we are working on Government figures, which are based on Department for Transport figures. We do not know whether they are appropriate, but that is what we have to work with to prove that sprinklers are cost-effective. If you proceed with the proposed Measure, Wales will provide the evidence base that everyone else will be able to look to. Wales will be taking the lead. They will be able to say, 'This is the evidence from Wales', which will inform the rest of the United Kingdom. This will be very powerful and, in itself, will be a pilot scheme. I have listened to some of the earlier evidence sessions in which people have talked about undertaking pilot schemes, but with hundreds of millions of sprinklers around the world, do we need any more evidence and pilot schemes to see whether they work? We do not think so, but, obviously, you also have to be satisfied.

[174] **Chris Franks:** Thank you for that.

[175] **Sir George Pigot:** May I add something about fires? I have UK national statistics on fires and the source of ignition here, which are freely available, and they show that, of 47,000 fires, nearly 4,000 were caused by smoking-related materials and 26,000 by cooking appliances. So, the vast majority of fires are caused by those two things. That has nothing to do with the fabric of the houses, whether they are new or old, brick or wood. Anything like that makes no difference; it is the people in the houses who cause fires. In fact, in the United States, they say that only three things cause fires: men, women and children.

[176] **Rhodri Morgan:** Not fags, booze and gramophone records. [*Laughter.*]

[177] **Nick Ramsay:** I think that my next question has been answered. You mentioned how

some sectors are saying that there should be more pilot schemes, and we have taken evidence from the housebuilding industry, which has questioned whether enough statistics and evidence exist to justify implementing the proposed Measure. From what you said a moment ago, I take it that you think that the evidence exists in other parts of the world and that it is a case of Wales getting on and doing this, and being an exemplar to the rest of the UK.

[178] **Mr King:** Absolutely.

[179] **Nick Ramsay:** May I ask a quick supplementary question, not so much to that, but to the question that Chris asked on the Vancouver example and deaths and injuries? When we took evidence from the fire service, the witnesses talked about the difference when turning up to a house that has sprinklers fitted, as the fire has been combated to an extent before they get there. Is there evidence from America about deaths or injuries among the fire service? In other words, even if the people living in the house are okay, when firefighters go in to tackle a blaze, is there evidence about their being safeguarded by a sprinkler system and not just the people who live there?

[180] **Mr King:** This is not so much evidence, but it becomes obvious if the fire, even if it has not been extinguished, has certainly been held back and controlled so that it gives firefighters a chance not to commit themselves unnecessarily and dangerously. I was in the service for 41 years, and we used to dash in without breathing apparatus and do snatch rescues, and so on, but, of course, this was done at great risk. This is a wonderful tool—a firefighter in every room—that will save the lives of firefighters.

[181] Four firefighters died in a warehouse fire in Warwickshire recently and two firefighters died in Southampton this year, in addition to those in Lakanal House, which is a tower block. They would not have died if there were sprinklers in those buildings. We are doing a retrofit of a tower block in Sheffield just to prove that they can be retrofitted. Communities and Local Government has said in building regulations that it will place a sprinkler system in all new tower block buildings of over 30 metres, but we have said ‘What about buildings like Lakanal House that are in place and where people are at risk: what are you going to do about those?’ It said that it was too expensive, not practical and not cost-effective to retrofit buildings with sprinkler systems. We are saying that it is practical because we have done it, it is £1,000 a flat, and that we should let the people who own the flats and the blocks decide whether it is cost-effective or not. So, we will prove it; we will retrofit a tower block and prove that it can be done. Communities and Local Government thought that it was necessary to decant the whole 10 storeys of flats of 100 families in order to retrofit sprinklers, whereas, in effect, it is done room by room and flat by flat, and the people might be out of the flat for just a few hours.

[182] **Sir George Pigot:** On firefighters’ safety, quite a few big cities in the United States use a private company for their firefighting services called Rural Metro, which makes it a first priority that there must be a sprinkler ordinance in any area that it protects to protect its own firefighters. For instance, Scottsdale in Arizona, which is one of the leading towns in the United States with regard to sprinklers, is protected by Rural Metro, which was one of the prime movers to get the sprinkler ordinance passed there in 1985. If that does not demonstrate the commitment or the appreciation of the fire services for the safety of their members, I do not think that anything else would.

[183] The United States Government also insists that all employees travelling on business on its behalf must stay overnight in properties protected by sprinklers, otherwise it will not pay their expenses. That is a commitment by the US Government towards sprinklers; it is really this country that has been slow to take up the initiative with sprinklers.

[184] **Eleanor Burnham:** Yr ydych **Eleanor Burnham:** You have just said, Mr

newydd ddweud, Mr King, eich bod yn gwneud hyn yn Sheffield ar hyn o bryd, ond cawsom dystiolaeth gynnau gan gynrychiolwyr Dŵr Cymru fod cymhlethdod o ran dod â dŵr i'r lleoedd hyn. Fodd bynnag, bu ichi ddweud eich bod yn gallu gwneud hynny 'flat by flat', ond dywed Dŵr Cymru fod hynny bron yn amhosibl neu'n rhy gostus i'w wneud.

King, that you are currently doing this in Sheffield, but we heard evidence earlier from Welsh Water representatives that it is difficult to supply water to these places. However, you said that you can do this flat by flat, but Welsh Water said that it is almost impossible or too costly to do.

[185] **Rosemary Butler:** I do not think that they said that, did they?

[186] **Eleanor Burnham:** They said that it was very expensive and they quoted some figures, but you say that you are already doing it in Sheffield. There are no specific questions on it, so I was going to take up the point. We have had lots of evidence from Dŵr Cymru; for example, it said that it would cost £695 with no excavation or reinstatement by it in a new housing site, £763 where it excavated or reinstated on unmade ground, such as a grass verge, £893 where the excavator reinstated on made ground such as a footpath or a minor road, and £976 where it excavated and reinstated on made ground such as a major road or where traffic lights are needed. However, you told us a minute ago that it is the easiest thing to do because you are doing it flat by flat. That does not concur with the evidence that we have received from it about the costs and barriers in bringing the water to do this.

10.50 a.m.

[187] **Mr King:** I will ask Sir George to talk a little about the water issues. I chair the water liaison group, of which Welsh Water is a member. We have nine or 10 water companies as members. I have shown the letter from Welsh Water to members of the group, and not all members of the group share Welsh Water's concerns. I could provide the evidence. All I wanted was a critique of Welsh Water's position so that I would not be bringing one water company into conflict with another, because that would not be fair. Wales has a geography and landscape that is comparable to other areas in this country. I will not pinpoint the place or places to which it is comparable, but you have mountainous areas and lots of high mountains, reservoirs and pressure. Therefore, the problems that you appear to face are relatively simple to overcome. We are talking about new builds, which would involve a requisition for a new main. The new main will then be provided, which will provide what you are looking for. Sir George has examples of the types and sizes of pipe that we are talking about, and I think that you will relate to that. I was talking earlier specifically about Lakanal House, a tower block, which is an existing building rather than a new one.

[188] **Eleanor Burnham:** Absolutely, I understand that.

[189] **Mr King:** We are not here to try to discredit anything that Welsh Water is saying. It is pointing out that there could be issues. Not everything is straightforward, and we accept that some things will have to be overcome in areas where there are issues, but the system will be designed according to the water availability there. So, if the water has very little pressure, we will put in a pump or a tank. However, we do not think that that is the norm. The area that I am talking about serves 1.7 million households, or 5 million people, and only 100 or so on the register cannot meet 9 litres a minute with just less than 1 bar, which is the bare minimum that would be required. However, that water company tends to operate a surrogate figure of 1.2 to 1.5 bar. Those exceptions are at the lower end. They are mostly the exception rather than the rule. In new mains, we would require 2.5 bar and a 32-inch MDPE pipe.

[190] **Sir George Pigot:** This is the pipe that is commonly used for a supply, but there is a general move elsewhere in the United Kingdom towards using a larger one because we use

more water these days than we used to—for instance, we bathe more than once a week or once a month. So, there is that change. There is not an enormous difference between the two pipes, and with regard to the trench that they go into and the work that is required to lay them, the difference in cost is a few pennies per house at the volume that is used.

[191] **Rosemary Butler:** Rhodri, did you want to come in on this point?

[192] **Rhodri Morgan:** We have this problem today of being humble politicians and not plumbers. If I remember rightly, Welsh Water said in its evidence that you needed 83 litres—is that right?

[193] **Eleanor Burnham:** It was 84 litres.

[194] **Rhodri Morgan:** You are now talking about 1 bar.

[195] **Eleanor Burnham:** It is 84 litres per minute.

[196] **Rhodri Morgan:** Yes. You are saying that in this other area that is fairly comparable to Wales in its geography, up north somewhere—insofar as anywhere could possibly be comparable to Wales—only 100 houses could not meet your requirement for 1 bar. How does 1 bar relate to 84 litres per minute?

[197] **Mr King:** That is not what the sprinkler system requires, rather it is the minimum provision that the regulations require of the water companies. Their statutory responsibility is for domestic water supply; we add on what we need for an operational sprinkler system to that minimum for domestic water supply. The fact that there is a water supply in a particular place means that we can do something with the mains rather than having to resort to other methods, such as private supplies, tanks and pumps. Sir George will say more about that.

[198] **Sir George Pigot:** I do not want to complicate matters, as that would be self-defeating, but a sprinkler system uses about the same amount of water as two, three or four normal houses. We are not talking about eight times the amount, as was mentioned earlier today, because most houses have a good supply of water; they are well above the statutory limit that is in place.

[199] **Rhodri Morgan:** Do they have a built-in redundancy?

[200] **Sir George Pigot:** Yes, they do, and that is because we live in a hilly country. Although this area might be described as being flat, when you drive around, you find that you are going up and down and all over the place, and that affects the water pressure. There has to be a higher pressure than 1 bar, or the water will not go around the system and get to the top of the hill.

[201] In fire engineering, we never expect to have more than one fire in one area at a time. Experience shows us that that is usually the case; it is fairly rare to see a fire engine going past on the way to a burning house, thank God. We do not need to supply enough water for every flat in a block, for example, to be able to operate all the sprinklers at the same time; we cater for only one sprinkler system to go off in the entire block. A block of a thousand residents is going to have a massive water supply, with much bigger pipes than in the example that I have just passed around the table. Much more water than we would ever need to run our sprinkler system is already going through those pipes, so that is not really a problem. Residential properties with multiple occupants should not have a problem with the water supply. Our problem is with single domestic houses, where the water goes from the water main into the house and has to be adequate for a sprinkler system inside. That is why we want to have a bigger service pipe.

[202] We have a problem with the meters because they are quite restrictive at present. However, meters that are not restrictive are available, although the water companies do not use them and they are not approved for weights and measures. Thames Water is now taking the initiative for these meters to be approved—Ronnie might know more about that than I do—but that process is ongoing. We do not mind that there is a meter in there, because the amount of water that a sprinkler system is going to use to put out a fire would cost less than a tenner; who cares that £10 of water is spent if it saves lives? However, we are concerned about individual houses. As I understand it, the majority of new homes built in Wales will be houses. These will be built in new estates on greenfield sites, where a whole infrastructure can be put in with the right-size pipe and the right pressure. There would be no more cost to doing that than for what is currently being done, if the infrastructure is designed in that way. We find that some of the statements made are rather disingenuous; we do not understand why particular parts of the water industry do not see this use of their water as a beneficial use of their product instead of showering, swilling teeth, drinking or whatever else. This will save lives, and we are stunned that they are not onside and pulling with us instead of being a little obstructive.

[203] **Eleanor Burnham:** I am very pleased that I asked that question.

[204] **Rosemary Butler:** Rhodri, are you happy with that answer? I see that you are, and we move on to Eleanor's next question.

[205] **Eleanor Burnham:** Awgrymwyd mai un ffordd fwy effeithiol o leihau marwolaethau ac anafiadau oherwydd tân mewn cartrefi fyddai chwilio am ffyrdd o wella diogelwch tai hŷn; er enghraifft, drwy addysg gymunedol a hyrwyddo larymau tân batri neu—ar gyfer grwpiau penodol—larymau tân gwifrau caled. Sut ydych chi'n ymateb i hyn?

Eleanor Burnham: It has been suggested that a more effective approach to reducing deaths and injuries caused by fire in homes would be to seek ways of improving the safety of older housing stock; for example, through community education and the promotion of battery-operated smoke alarms or—for targeted groups—hard-wired smoke alarms. How do you respond to that?

11.00 a.m.

[206] **Mr King:** 'Up in Flames' and 'Wired for Safety' have targeted all new homes. Fire and rescue services are active throughout the UK and are very successful in identifying those most at risk. They are bringing down fire deaths and injuries in those people by identifying them. An alarm will only alert someone. Only last month, in Edinburgh, a disabled old lady who was in bed was alerted, but could not get out. That must have been the most awful death. She was unable to do anything about it. The alarm was raised, it told her and it told the fire service, which came along, but by the time it came along, she was not alive. I have seen these things over 41 years in the service. It is sad that the solution is here—the solution is the sprinkler. People will not die in buildings that have sprinklers, although you will always find an exception. Someone will always ask about that chap in Dorset—he fell on the fire, the sprinkler put the fire out and it put him out, and three weeks later he died from the injuries. The sprinkler did its job. We are not saying that there will never be a death in a property that has sprinklers installed, but there has never been a multiple death in such a property anywhere in the world. That is the advantage. We have plateaued as regards education, smoke alarms and all the other things that we can do. This is the only solution left to stop people dying. It will put the fire out and that is what we want to achieve. The Government has considered the inquiry report into the deaths of 14 old people in Rosepark Nursing Home in Scotland, and it will recommend the installation of sprinklers in all new care homes. I know that Communities and Local Government will say that we have sprinklers in all new care homes, but we do not, and it is not regulatory. New care homes are being built in this country without sprinklers.

[207] **Eleanor Burnham:** Wrth gwrs, gallwch dynnu batri o synhwyrdd mwg ac mae hynny'n ei wneud yn aneffeithiol.

Eleanor Burnham: Of course, you can remove a battery from a smoke detector, which renders it ineffective.

[208] Yn eich tystiolaeth, yr ydych yn nodi bod y rhai sydd yn y perygl mwyaf oherwydd tân yn dod o fand oedran cul a grŵp economaidd cymdeithasol penodol. Yr ydych yn mynd ymlaen i awgrymu mai'r unig ffordd o leihau cyfraddau marwolaethau oherwydd tân ymhellach yw drwy osod systemau llethu tân awtomatig. A allwch ymhelaethu pam eich bod o'r farn hon?

In your evidence, you note that those who are most at risk from fires come from a narrow age band and a well-defined socioeconomic group. You go on to suggest that the only way to reduce the rate of fire deaths further in this at-risk group is through the installation of automatic fire suppression systems. Can you expand on why you believe this to be the case?

[209] **Mr King:** It was identified in the fire service report that sprinklers were the only solution to this, so we are repeating what it has concluded. This has now been overtaken by the proposed Measure, which requires sprinklers in all new buildings, so where do we make this start? Ideally, we would like to see sprinklers in the homes of all at-risk people, whether it was a new build or an existing property. We realise that, in existing properties, it will be more costly and difficult, because it involves retrofitting. While people are at risk, we feel that fire and rescue services can potentially utilise fire safety moneys within their own annual budget provision, and they have done that in Kent, south Yorkshire and other areas. They have allocated money from their fire safety budgets to assist in the cases of those who are highly at risk in existing properties. We are advocating that, for the proposed Measure to move forward, it has to move forward in tandem. We have to deal with at-risk groups in existing properties from internal budget provision. However, we have to start somewhere, and we recommend starting in new homes. Over a period, we will have a methodology of completing this process, so that all people will be safe, because at-risk people move from property to property. So, if we fit all new properties with sprinklers, we will know that, if a property was built before 2011, it may not have sprinklers, and that, if a property was built after 2011, it should have sprinklers. Therefore, we will know who is going into which property and, in social housing, at-risk people will perhaps be placed in premises with sprinklers. That is the thinking.

[210] **Sir George Pigot:** May I add to that? We must remember that a sprinkler system is an active system. It automatically deals with a fire regardless of whether anyone is there or whether the person there is capable of reacting. Our current approach of using smoke alarms to give early warning requires you to make your escape or someone to come to rescue you. So, we are changing from a passive approach to fire safety to an active one.

[211] On this lovely idea of targeting certain groups of people and saying that we will protect them, unfortunately, they do not co-operate and they live in houses all over the place. So, we cannot easily identify where they live. If you were to make a ghetto of those people—not that you want to do anything like that—you could then say, 'Yes, we can protect them as a group of people', but it just does not work that way in real life.

[212] Another point about new houses and old houses is that, of course, today's new house is tomorrow's old house, and in 30 years most of the houses built today will probably have been knocked down to be replaced by new houses—that is the way that housing goes these days.

[213] **Chris Franks:** This is really a bit of a variation on the previous question. Your evidence suggests that it would be sensible to concentrate initially on certain socioeconomic groups. Do you want to expand on that point? Is the proposed Measure drafted in such a way

as to allow for this strategy that you are suggesting?

[214] **Mr King:** I do not think that the proposed Measure needs to change the approach of applying to all new housing. When the chairman wrote about concentrating initially on at-risk groups, he was really talking about those from existing fire and rescue budgets. He was probably not thinking about the proposed Measure being for new buildings. In answer to an earlier question, we are looking at all new buildings having sprinklers installed. That is the objective, and I do not think that you can talk about new buildings with at-risk people in them having sprinklers installed and exclude other people.

[215] As Ann Jones has probably said, those people in Warrington who had the sprinklers installed were in a different situation from people in private housing who did not have sprinklers. If you start to discriminate, it will be very difficult—if you are targeting new housing. As I said earlier, our proposals would be to deal with existing at-risk people, regardless of whether they are in new housing and to say that all new housing must have sprinklers. It is like seat belts in cars. The law stated that seat belts had to be put in all new cars. Thereafter, it became the norm. I am sure that, once people see that people are safe and that no-one will die in a fire in a building with sprinklers, they will wonder why they do not have them and they will certainly want them. I do not think that we can discriminate at that stage, but, in existing buildings, we can certainly target certain socioeconomic groups and those most at risk and most vulnerable.

[216] **Chris Franks:** We are hearing conflicting evidence about the annual maintenance requirements of a sprinkler system, so I have a series of questions on this. I think that I will go through them all together. How important is it that these systems are properly maintained? What does ongoing maintenance involve in practical terms? Should the proposed Measure contain explicit provision for maintenance of the system or is it acceptable to leave that for Welsh Ministers to address? Could the absence of provision for ongoing maintenance undermine the effectiveness of the proposed Measure?

11.10 a.m.

[217] **Mr King:** I will ask Sir George to deal with this, because he has a lot of experience of maintaining sprinkler systems, and I think that it is appropriate that he answers this question.

[218] **Sir George Pigot:** A residential sprinkler system, because it uses copper pipe and plastic pipe, has nothing in it that will in itself go wrong. Therefore, there is nothing that you would normally need to do to it. The only thing that you do need to do, from time to time, is to check whether someone has done something to it to stop it from operating properly. If it has a pump, you will need to make sure that the pump is still serviceable. Evidence from the United States, where the majority of systems are fed directly off the water main, is that even if they are not maintained—although we would obviously prefer that they were maintained—and are abused badly, they will still work eventually. It may delay their operation but, in due course, things will get hot enough, the sprinkler will burst, and the water will come out and do its job.

[219] The maintenance of a sprinkler system is covered by British Standard 9251, which you have possibly all seen, and is contained on this page, which has very few words on it. So, you can see that the maintenance requirement is very simple. I would be happy to hand this around if you would like to have a look at it. If we are going to make a regulation that states that the system should be installed to the standard, this is already catered for within this document.

[220] **Rosemary Butler:** We will have copies made.

[221] **Sir George Pigot:** Maintenance should not really be a problem, although, like all things, we would rather that the system was checked on an annual basis. However, it is not like a gas service where, if it is not maintained, the apparatus might actually kill you. A sprinkler system is there to save your life, perhaps from the cooker blowing up and starting a fire. In fact, there is a lot of anecdotal evidence from the United States of sprinkler systems that have been badly abused, and the pipework has come apart because it has become so hot, the water has come out, put the fire out, and the job has been done.

[222] **Chris Franks:** So, the pipes have actually failed.

[223] **Sir George Pigot:** Yes.

[224] **Chris Franks:** The water is not coming through the sprinkler itself.

[225] **Sir George Pigot:** Where the fire is started in a wall, for instance, where the pipework is, or in some odd, peculiar way, something has happened that is not catered for within the normal ambit of that residential sprinkler system.

[226] **Mr King:** Building regulations do not specify the maintenance of the system. Therefore, it is felt that it would be best for the regulations and the proposed Measure to make reference to the appropriate standard. The standard will cover maintenance, and that is deemed to satisfy your concerns about whether we have covered maintenance in the proposed Measure and we have cleared it that everything is as it should be. It would be far better just to make reference to the appropriate British standard which, in itself, spells out maintenance.

[227] **Sir George Pigot:** Also, that standard makes it quite clear that the responsibility for maintenance lies with the owner of the sprinkler system and nowhere else. We feel that that is probably quite enough.

[228] **Eleanor Burnham:** I have two points to make, the first of which is about stagnant water and the possibility of Legionella or some other nasty bug, which I will not mention, in case I mention the wrong one. Secondly, where does a householder get the expertise for the maintenance? Will experts come along to do this maintenance?

[229] **Sir George Pigot:** I think that, with 8,000 or 9,000 installations in Wales per year, there will be a plethora of companies set up to cater for that. If they do not already exist, they certainly will do fairly quickly and they will all provide a maintenance service. Being on the spot and being able to service of several houses, one after another, will bring down the cost of doing that dramatically, rather than the current situation in which we have one place here and another 50 miles away and there is an awful lot of travelling between the various properties.

[230] You asked about diseases. A briefing note was produced by the Loss Prevention Council on Legionella in sprinkler systems. I do not know whether you are aware of this document, but it was produced around 10 or 11 years ago and shows categorically that Legionella is not a problem for sprinkler systems. I could explain to you why, if you would like.

[231] **Rosemary Butler:** We will have a copy—

[232] **Eleanor Burnham:** It is 10 years old.

[233] **Sir George Pigot:** Legionella has been around for much longer than that and has not really changed.

[234] **Eleanor Burnham:** I know that, but I meant to ask whether there has been a subsequent briefing about—

[235] **Sir George Pigot:** I do not believe so.

[236] **Rosemary Butler:** We can make enquiries about that.

[237] **Mr King:** The answer is that it is clearly not an issue for the occupants of sprinklered buildings, because there are hundreds of millions of sprinklers installed across the western world, but there are no public information records or evidence that anyone has contracted Legionella through a sprinkler.

[238] **Sir George Pigot:** Another point is that if you have saved the person's life from fire, you can always try to cure the Legionella afterwards. However, if they are dead, there is, of course, not much point.

[239] **Val Lloyd:** In your evidence, you state that:

[240] 'the definition of "residence" might need to be further qualified.'

[241] Can you elaborate on that point, please?

[242] **Mr King:** It is really that there is sometimes an overlap between the words 'residence' and 'domestic'. A residence could be a hall in a school or a care home, whereas 'domestic' means a person's home. So, we just want to ensure that expressions and terminology in different pieces of legislation are described fully, and that there is consistency throughout the proposed Measure.

[243] **Val Lloyd:** Research undertaken in the UK suggests that the installation of automatic fire suppression systems in all residential premises is not cost effective. In your evidence, you state that you are confident that the costs of the proposed Measure are outweighed by the benefits. Can you expand on why you believe this is the case?

[244] **Mr King:** The 2004 Building Research Establishment study is the basis on which Government has made the decision that sprinklers are cost effective only in tall tower blocks above 30m in height and in certain care homes, although there is no requirement for them in care homes. Along with the Chief Fire Officers Association, the National Fire Sprinkler Network and others, we have commissioned the author of the BRE 2004 report to update that report. That report was done for the Government; the BRE was commissioned by the then Office of the Deputy Prime Minister—now the department for Communities and Local Government—to undertake this research. It failed to take account of some very important data and relied heavily on very old data, which Sir George, on behalf of the Residential Sprinkler Association, responded to and criticised. However, that report has moved on and we have now commissioned new research.

[245] The new research will take account of all the things that have happened in America, an ageing population, new methods of building construction and new materials used in building construction. The research will therefore be far more comprehensive and up-to-date, and we are confident that it will state that sprinklers are cost-effective. It was marginal as to whether it tipped towards being cost beneficial or not, but the price of a life and the price of an injury were some of the determining factors.

11.20 a.m.

[246] When armed with these updated figures, and factoring in all the factors that I have

mentioned, we are certain that that will make the difference. The Minister for Environment, Sustainability and Housing has relied on a critique that suggests that the proposed Measure and its explanatory memorandum are not rigorous, robust, or any other similar term. We will ensure that this report will make it rigorous, robust, and persuasive.

[247] **Val Lloyd:** You led in very nicely to my next question, as you mentioned the BRE review. We are awaiting the results of its latest review, due any day now, unless it has been delayed. Do you think it would be reasonable to wait for the outcome of the review before we move on the legislation proposed?

[248] **Mr King:** I think that anything arising from that review could be taken up later in regulations. I do not think that this proposed Measure should be held up any more, as the clock is ticking and another 60 people might have died in the three years since this legislation first appeared as a Member-proposed Order. We feel that we have to start somewhere to prevent all the unnecessary injuries and burns. If we make a commitment to this, then at least we shall not be waiting for another opportunity while it is delayed further.

[249] **Rhodri Morgan:** I do not know whether you heard the previous evidence from Welsh Water, but I just want to take you back to the contrast between that and the views that you say are taken from another water company that serves a geographical area similar to Wales. You do not want to identify it for reasons of not wanting to stir up trouble between different water companies, but I would presume that it is somewhere up north, where they would refer to water as ‘watter’—it will remain nameless, unless you are willing to tell us where it is. Welsh Water says that it operates pressure management, in which it keeps the water pressure low where it can, which means that it does not have to find so many leaks, because far less water is lost that way. However, that means that it has this problem in that, you do not have the relatively high pressure required to supply a water sprinkler system. So, we have the fire sprinkler industry saying that it wants high water pressure, asking that the choke on water metering, pressure management and so on be taken off, and we have a water industry body outside Wales, where they call it ‘watter’, saying that that is not a problem and that it does not agree with Welsh Water’s view on the matter. Can you expand on this point, because the evidence that we have is not only conflicting between the fire people and the water people, but between two lots of water people, depending on whether you live ‘oop north’ in England or in Wales?

[250] **Sir George Pigot:** Wales is not short of water, is it?

[251] **Mr King:** No, it is not.

[252] I have a line-by-line critique of each of the points that have been made and comments that suggest that it could have a serious argument on these issues, but I do not think it appropriate for me to do that for reasons of goodwill.

[253] **Rhodri Morgan:** How are we to proceed if you do not provide the detailed, line-by-line critique?

[254] **Mr King:** I would suggest that, through your legislators, we ask those members of the water liaison group that are water companies for their views on this letter.

[255] **Rhodri Morgan:** I would be more than happy for that to happen, but do you have any other views that you would like to express on the kind of picture that was painted for us this morning by Welsh Water that, if you increase the water pressure by not doing pressure management any longer, it will have to find vast sums of money to comply with Ofwat’s reduced leakage requirements, because the cheapest way to reduce leakage is simply to lose less water through leaks by reducing the water pressure rather than finding the leaks?

[256] **Mr King:** These will be talking about new mains.

[257] **Rhodri Morgan:** However, you then have the problem of the water meters. How can that be different in England?

[258] **Mr King:** Thames Water is currently trialling a new water meter that will allow the flow to go through to the sprinkler system without the need for such a strict check as the domestic water supply has. It is called a dual-bore meter. The results of its trial will be helpful to the proposed Measure.

[259] **Rhodri Morgan:** So, it bypasses the regular water meter, does it?

[260] **Mr King:** No, it is a water meter that will record domestic water use through the normal pipe and it will record the sprinkler use when the sprinkler operates. So, it is a dual-bore meter. Basically, from chairing the water liaison group, it sounds to me as if that group's members do not have the issues and problems that were raised in the letter and the evidence that we witnessed. There are problems and issues, but they are usually resolved between the water companies. We have a protocol on what is acceptable and what is not acceptable. Water companies can do their own thing anyway, they do not have to abide by the protocol—

[261] **Rhodri Morgan:** I just need to be clear about what you are telling us about the evidence that we heard this morning from Welsh Water. Are you saying that your view, based on your knowledge of other water companies with similar geography to Wales, is that Welsh Water is displaying a lack of a can-do attitude when faced with the legislation that we are scrutinising?

[262] **Sir George Pigot:** Yes.

[263] **Rosemary Butler:** To make it easier for you, we received the same evidence from the housebuilding industry and Community Housing Cymru, so you are not isolated, if that helps.

[264] **Rhodri Morgan:** To confirm, you are saying that Welsh Water does not have a can-do attitude.

[265] **Mr King:** That is my perception based on the letter and the evidence. We would think that if it were planned on day one, provision could be made to get the right size mains, and electrofused branch saddles could make service connections that would cut costs considerably. When I talk to the other water companies, I say, 'You are going to provide water to new domestic premises. If we want a sprinkler connection, the only additional cost is connecting to the sprinkler bit. So, you should not be charging us for the mains, because that will be provided anyway for the domestic supply. We need only this additional connection', and they agree that that is what we need.

[266] On the tanks, storage and pumps that Welsh Water suggests are its preferred option in Wales, if everything has a pump, that would prevent the problems of pressure flows and being able to meet regulatory requirements. The message from the other water companies is that not all the water industry prefers water storage and boosting.

[267] **Rhodri Morgan:** Not all? However, some do prefer storage and boosting, so Welsh Water is not alone. There are two different views within the water industry.

[268] **Mr King:** There are. Welsh Water is something of an exception in making tanks, storage and boosting its first option, because it is costly for the sprinkler industry. It makes

sprinklers more costly if you have these additional charges. Therefore, it militates against what we want to achieve. We want it to put in new mains and not to have tanks and pumps as its first option. Where we can get mains in, let us put them in. Let us only go to tanks and pumps when there is not enough pressure. The person designing the system for the sprinkler will first assess the water availability in the area before he draws up the specification for that system. If a tank needs to be put in, he will do that.

[269] **Rosemary Butler:** Dee Valley Water also expressed some concerns in its evidence, so we can have another look at that. Eleanor, do you want to come back on this point?

[270] **Eleanor Burnham:** Yes, I wanted to follow up Rhodri's excellent questions about these issues, because this is a huge concern. I earlier quoted some figures about excavation and preliminary calculations for new house costs: £695 with no excavation, going up to £976 where it has to excavate and reinstate made ground, such as a major road or where traffic lights are needed. That is almost £1,000 at the top and £700 at the bottom. Do you agree with those costs? Do other water authorities quote those costs?

11.30 a.m.

[271] **Sir George Pigot:** We cannot comment on their costs. They would be negotiated with outside contractors, and do not necessarily represent the particular job that is being done. They negotiate a ballpark figure for all sorts of things. However, they will have to dig the trench and put the pipe in to supply a new house anyway—so, whether it is our slightly larger pipe, or an ordinary pipe, I do not see why there should be a difference in cost, although there will be a cost. A lot of water companies are now adopting that larger pipe size as their standard, so it is not a problem for them.

[272] I am sorry to change the subject slightly, but going back to what Rhodri was asking, one of the problems or fears that the water companies have is that if they connect us directly to their mains and the main is, for some reason, out of action—whether catastrophically, or for planned maintenance, or something like that—and there is then a fire, there would be no water, the sprinkler system would not work, someone could get hurt or killed and they would feel that they have a legal liability. Possibly the regulations could absolve them from that—I do not know whether that is legally possible. However, at national level, with the Department for Environment, Food and Rural Affairs, we are trying to get into the Water Act a statement that water companies would not have a legal liability, unless, of course, they had done something stupid, negligent or deliberate to cause that to happen. I think that that is the main reason that they want this pump and tank—it absolves them completely of any liability for their product failing.

[273] Having said that—and I am sorry to take up your time—we are then forced into a position where we are dependent on a pump working. The pump would be dependent on the electrical supply, and that tends to go off more frequently than the water supply does. The pump itself might sit there for 50 years, because our systems are designed to last for 50 years as a minimum. However, a pump that sat there for 50 years might not work—well, if I sat here for 50 years, I probably would not work either. So, we have to put systems in place to get the pump to start from time to time, and that sort of thing. It may fail, and it may lose its prime, in which case it will not pump at all. Then there is the delay between the pump starting up and the water coming out of the sprinkler. All these sorts of things add to the complication of the system. If they must be, they must be—

[274] **Eleanor Burnham:** Keep it simple. That is your message.

[275] **Sir George Pigot:** We want to keep it absolutely simple. Just plug it into the water mains. The water is already there. When unvented hot water systems came in 25 years ago,

the people who represented that industry did a survey of water pressures across the UK. They may have gone down since, but, at that time, 75 per cent of households could expect two and a half bars of pressure in the main, and 50 per cent could expect more than four bars.

[276] **Eleanor Burnham:** How does that equate to the 84 litres per minute that was discussed by the water company? That was the question that Rhodri asked.

[277] **Sir George Pigot:** Without getting too complicated, there is a difference between pressure and flow. The bigger the pipe, the more flow you can get through it, so if you have a smaller pipe, you need more pressure to get the same amount of water. That is why we want a slightly bigger pipe.

[278] **Rosemary Butler:** On the point about Welsh Water Dŵr Cymru, I think that it does need a right to reply. We will ask for further written evidence on the points that have been raised today.

[279] **Mr King:** I would just like to mention that, on the point that you raised about the calculations—£763 and the other figures in the letter—the critique remarked that those figures apply only to existing highways, and not new developments. So the prices in the letter would not apply to new developments.

[280] **Sir George Pigot:** That is an important point with regard to all these costs. Our experience in the UK is based on one-off special installations, and we do not have a housing estate of 5,000 houses being built and equipped with sprinklers so that we could see the real benefits of scale. Studley Green, which I was involved with, consists of 200 houses; it is quite a small development. Look at the United States, where there are big estates being built, and everything has to have sprinklers. I could equate the cost of the sprinkler system to central heating. When I was a child, no-one had central heating, or at least very few people did. Today, all houses have central heating. When I was a child, it cost hundreds or thousands of pounds to have it put in; today, it is a few hundred pounds on the cost of a house. That is the benefit of the scale from everybody having to do it. I might just also add that, about 10 years ago, the Government introduced Part E to Schedule 1 to the Building Regulations 2000, which is to do with sound absorption in new houses. When this came in, it was hardly commented on; nobody on the housebuilding side was worried about it and it is now part and parcel of every house. The Government estimated that the cost of doing that would be £2,500 a house. We estimate that it will cost less than £2,000 a house to put in a sprinkler system that will save your life. So, why is £2,500 for sound insulation perfectly acceptable while less than £2,000 to save your life is unacceptable? I do not understand the logic of the cost-benefit analysis. Like all statistics, I think that they prove whatever you want them to prove.

[281] **Rosemary Butler:** In your evidence, you suggest that a public awareness campaign would be necessary ahead of the implementation of the proposed Measure. Can you expand on why you think that that would be important?

[282] **Mr King:** It is about dispelling the myths of sprinklers. There are so many myths. When you talk to people—and I talk to many people—the first thing they say is, ‘We don’t want a drenching; we’d rather not have it done in case we get drenched’. There are views that if they should be fired, they would all go off together, and it is also thought that, if people burn the toast, the sprinkler will go off. There is a need to have not an expensive campaign, but an informative campaign to go along with this great announcement that will, hopefully, proceed to enactment of this legislation in Wales. We hope that it proceeds. In announcing it, we will say, ‘By the way, don’t forget, these do not just go off, but they will save your lives because deaths are very few in buildings fitted with sprinklers’. All the positive aspects will be conveyed and the myths dispelled in any campaign. I think that that would be very helpful, and we would certainly like to contribute to it, if it proceeds to that stage.

[283] **Rosemary Butler:** Are there any other points? I see that there are none. You have certainly given us some food for thought this morning. Thank you very much for coming in. If there is anything that you think we have not covered, please let us have it in writing. We do need it rather quickly, because we have a fairly tight timescale on this procedure. You will receive a copy of the draft transcript for your comments and observations before it goes public. Thank you very much indeed for coming in; it has been very helpful.

[284] **Sir George Pigot:** Thank you very much for the opportunity.

[285] **Rosemary Butler:** I remind Members that we have another meeting next week.

Daeth y cyfarfod i ben am 11.38 a.m.
The meeting ended at 11.38 a.m.