

## Challenge Session with Portsmouth Water Company on the future Use of Havant Thicket Reservoir – 5 July 2023

### Supplementary Questions -

	Question	Answer
L1	<p>Why is Portsmouth Water Company going along with the use of Havant Thicket Reservoir as an environmental buffer lake for effluent recycling when the modelling and environmental impact assessments have not yet been completed and published, so the environmental risks to the reservoir and Langstone Harbour SPA/SAC are not yet understood?</p>	<p><b>As a company, Portsmouth Water is committed to doing the right thing, and that includes helping our neighbours to supply their customers with water.</b></p> <p><b>Water is scarce in the South-East, yet the impacts of climate change and population growth are increasing. Southern Water has agreed to take less water from world-renowned chalk streams, the River Test and the River Itchen, which will leave the company with a daily deficit of 192 million litres in the event of prolonged dry weather.</b></p> <p>Water recycling would provide Southern Water with up to an additional 90 million litres per day during periods of prolonged dry weather, as opposed to 21 million litres per day from the current approved proposals.</p> <p>Recycled water is highly treated, purified water and would be cleaner than the spring water feeding into the reservoir. For example, initial modelling indicates that the average concentration of nitrates in the recycled water put into the reservoir would be significantly lower than the levels found in the spring water – 0.1mg/l (milligrams per litre) in recycled water, compared to 30mg/l in Havant spring water and 34mg/l in the water from Bedhampton springs.</p> <p>Our support for the water recycling scheme is absolutely dependent on there being no detrimental impact on the environment and our ability to maintain excellent drinking water standards. Southern Water is currently carrying out detailed studies and investigations as it explores this option further, including the impact on nitrate levels in Langstone Harbour. We are keeping an open mind as we await the outcome of these.</p> <p>If proven to be safe and effective, the Hampshire Water Transfer and Water Recycling scheme would be a valuable and sustainable new source of water for the water-stressed South-East.</p>
L2	<p>Portsmouth Water Company have a much lower frequency of hose pipe bans than Southern Water</p>	<p><b>Temporary usage bans (hosepipe bans) can only legally be implemented if water companies reach stage two of their drought plans. These plans are agreed with the</b></p>

<p>(PW 1 in 20, SW 1 in 5). Could P.W plan for a higher rate of hose pipe bans (TUBs), as that would reduce demand in dry periods and help educate the public as to the value of water, encouraging them to use water more wisely?</p>	<p><b>Secretary of State. As a result, Portsmouth Water cannot introduce these measures by choice.</b></p> <p>The criteria for reaching stage two of our drought plan is set in consultation with our customers and has been the same for a long time.</p> <p>The possibility and possible benefits of changing this is something we are planning to explore with our customers in preparation for our next Water Resources Management Plan (2029), but in our view the benefits must be carefully weighed against the potential impact on customers.</p>
<p>L4 Climate change is forecast to give us wetter winters and dryer summers with more storm events. Apart from Havant Thicket Reservoir, what are Portsmouth Water Company planning to do to collect and store more water?</p>	<p><b>We currently rely on the chalk geology under the South Downs to capture and store winter rainfall – this is in effect a large natural underground reservoir. We then take that water from boreholes (wells), springs and via River Itchen when we need it most in Summer.</b></p> <p><b>The environment is also under pressure from climate change and as a result, in the future we are going to be required to take less water from the chalk. Therefore, our current focus is not how to trap more water, but how we can help our customers each use a little less water, so collectively we need to take less from the environment.</b></p> <p>Reducing leakage and supporting customers to use less water are fundamental to our long-term plans. Portsmouth Water’s draft Water Resources Management Plan would see us halving our leakage by 2050 and installing smart meters in all homes to reduce water usage by 2040. However, these measures alone would not be enough to supply the water needed and new, sustainable sources of water are still required.</p> <p>Consequently, and as part of our next Water Resources Management Plan, we will review any opportunity for additional storage reservoirs.</p>
<p>L5 Is storage in confined aquifers being considered to top them up in winter, so the water is available in dry summers?</p>	<p><b>We have explored the option of storing water in confined aquifers. Our geology presents two possibilities for the creation of these: within confined chalk and within confined greensand. Unfortunately, both of these options present significant challenges.</b></p>

	<p>Our studies to date have shown the confined chalk in our supply region is either unproductive, or has karstic features allowing rapid flows, such that any injection of water will be very difficult to store as the water will be rapidly lost to the harbours.</p> <p>The confined Lower Greensand is hundreds of metres deep and therefore boreholes would be very expensive, and we might find that it is unproductive and/or has water quality issues.</p> <p>However, notwithstanding the above, we do plan to review our work to date on the feasibility of aquifer storage and recovery for the next round of water resource planning.</p>
<p>L6 Are any more winter storage reservoirs being investigated?</p>	<p><b>We currently rely on the chalk geology under the South Downs to capture and store winter rainfall. We then take that water from boreholes (wells), springs and the River Itchen when we need it most in Summer.</b></p> <p><b>The environment is also under pressure from climate change and as a result, in the future we are going to be required to take less water from the chalk. Therefore, our current focus is not how to trap more water, but how we can help our customers each use a little less water, so collectively we need to take less from the environment.</b></p> <p>Reducing leakage and supporting customers to use less water are fundamental to our long-term plans. Portsmouth Water’s draft Water Resources Management Plan would see us halving our leakage by 2050 and installing smart meters in all homes to reduce water usage by 2040. However, these measures alone would not be enough to supply the water needed and new, sustainable sources of water are still required.</p> <p>Consequently, and as part of our next Water Resources Management Plan, we will review any opportunity for additional winter storage reservoirs.</p>

L7 The loss of Ancient Woodland was only permitted by the LPA and supported by Natural England after Portsmouth Water Company demonstrated the wider benefits of the reservoir proposal in terms of;

a) Biodiversity net gain largely generated by fluctuating water levels in the retained wetland, as well as the unique biodiversity opportunity created by a chalk spring fed reservoir. Instead the water chemistry, salinity, temperature will be changed by the introduction of recycled effluent, with the added increased risk of pollution and bioaccumulation/ sediment accumulation.

Southern Water have said they will keep the reservoir topped up which will have an adverse impact, reducing seasonally fluctuating water levels to the detriment of biodiversity.

b) Reduction in the nitrate levels going in to Langstone harbour as spring water. would be diverted to fill up the reservoir after the summer evaporation losses, or any drawdown. Instead Southern Water plan to keep the reservoir topped up with recycled effluent so less spring water will need to be diverted to the reservoir, reducing the benefit of the reservoir to Langstone Harbour.

How will these important benefits be delivered if effluent recycling goes ahead?

**Portsmouth Water was granted planning permission for Havant Thicket Reservoir, and the required removal of The Avenue, because of the exceptional need to protect world-renowned habitats, the River Test and the River Itchen, in Hampshire by providing a new sustainable source of water. Chalk rivers are some of the rarest habitats in the world and Southern Water has entered into a long-term agreement to significantly reduce abstraction of water from these rivers.**

As a result of the need to remove this woodland, Portsmouth Water is carrying out extensive environmental mitigation works both on and off site. The environmental works being carried out on site are primarily to compensate for the removal of areas of grassland and wood pasture as it is recognised that saplings and new planting cannot replace well established ancient woodland.

Separate off-site environmental works are being carried out to mitigate for the loss of ancient woodland including improvements to Southleigh Forest, working with private landowners to convert 80 hectares of local agricultural land into woodland, wood pasture and grassland and a capital grants scheme for local environmental projects.

We anticipate there would be no impact on the environment at the reservoir, including the wetland, if the water recycling scheme was to go ahead. There would be a daily flow of recycled water into the reservoir and an equal daily flow of water from the reservoir directly to Southern Water's drinking water treatment plant at Otterbourne, near Winchester. This would allow seasonal fluctuations in water level to occur as planned.

Spring water would continue to be stored in Havant Thicket Reservoir in the same volumes as originally planned if the water recycling proposals were to go ahead.



Our support for the water recycling scheme is predicated on there being no detrimental impact on the environment and our ability to maintain the legal drinking water standards. Southern Water is currently carrying out detailed studies and investigations as it explores this option further, including the impact on nitrate levels in Langstone Harbour. Similarly, we are modelling the impact of regular flows of recycled water into and out of the reservoir on issues such as algae growth. We are keeping an open mind as we await the outcome of these investigations.

Subject to any new information gained from the ongoing studies and investigations, the commitments we have made through the planning process will be delivered irrespective of whether the recycling project goes ahead or not.

I understand that the water recycling option was not 'just an idea' when the planning meeting was held. It was the second option after the Fawley desalination plan and HBC had been informed. Is that correct?

**Water recycling was Southern Water's back-up option to desalination and was raised in 2020. Portsmouth Water also discussed this with Havant Borough Council and East Hants District Council planning officers in 2020, as the use of recycled water was an option being considered as part of our own Water Resource Management Plan as a long-term solution to pressures on the water balance from 2050 onwards.**

Water recycling was not selected as Southern Water's preferred option for the immediate term until late 2021, after Portsmouth Water had submitted its planning application.

In 2020, it was Southern Water's plan to build a desalination plant at Hythe on the Solent, which would treat seawater to drinking water standards. This would provide a new source of water, enabling Southern Water to meet its targets for minimising abstraction from the River Test and River Itchen during times of drought. At the same time, water recycling was being actively explored as a viable "back up" option and Portsmouth Water was aware of this. Under this scheme, more water would be available to take from Havant Thicket Reservoir and Southern Water would be able to transfer that water directly to its Water Supply Works in Otterbourne (near Winchester).

Information was shared about water recycling during the original planning process for the Havant Thicket Reservoir. During the Planning Committees, members raised questions about the scheme and it was highlighted that any changes to the current application would require separate planning approval, as is still the case. There is a written record of this in the [minutes](#) (see pages 4, 10 and 32) and information about the scheme was also shared with Havant Borough Council's Planning Committee for consideration in this [public document](#) (see page 3). Much information was also publicised ahead of both Planning Committees through Southern Water's [consultation](#) which ran until 16<sup>th</sup> April 2021. We were consistently open and upfront about these proposals, answering questions as best we could with the limited information available at the time.

There is plenty of evidence that the recycled water is safe to drink. The problem is that many customers may turn to bottled water. In Singapore 70% buy bottled water and they have a huge recycling problem. What modelling has been carried out in terms of changes in customer behaviour and any switch to bottled water?

**We know some of our customers have concerns about drinking recycled water and before we could start using it as a source of drinking water, they would need confidence that it is safe. Over the next few months, Portsmouth Water will be speaking directly to our customers about recycled water, giving them the facts, and offering them opportunities to ask us questions.**

We have always had a close, trusting relationship with our customers, and we hope that in time, they will have the information they need to feel confident that recycled water is a safe, sustainable source of drinking water. Customers should rest assured that whatever happens, Portsmouth Water will be in sole control of the water that enters and leaves the reservoir.

We recently surveyed 80 Portsmouth Water customers at community events in Bedhampton and Havant. Of the 80 questioned, 56 said they felt very positive, positive or neutral about the water recycling proposals.

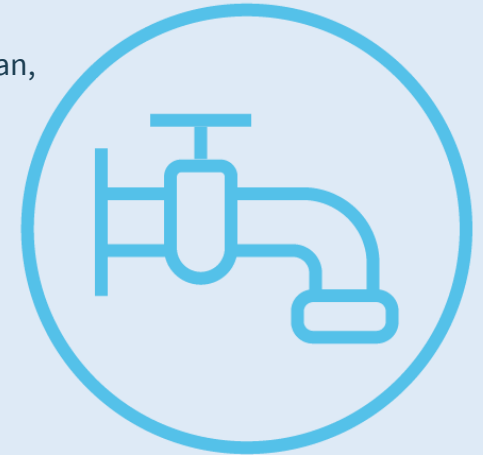
We'll be drawing on the experiences of other countries where recycled water is already used successfully, including Singapore. You can read more about one of the schemes here: <https://www.pub.gov.sg/watersupply/fournationaltaps/newater>. Recycled water is branded as Newater in Singapore and visitors to the treatment plant are provided with bottles of it to drink, such is the high level of public confidence in this water.



This was the first occasion we've heard a figure of 5% given as the local (current PW customer) use of recycled water. It was said this would be solely in emergency or extreme drought situations where existing PW customers would receive recycled water. Could this figure increase in time and, again, how has it been modelled?

**Under the current, approved plans for Havant Thicket Reservoir, in drought or emergency conditions, water from the reservoir will be piped to Portsmouth Water's Farlington Water Treatment Works, be treated to drinking water standards and used to supply some of our customers in Hampshire. This would free up water to the west of our supply area which we would share with Southern Water.**

Portsmouth Water's strategic planning, which is encapsulated in the Water Resource Management Plan, requires the company to plan for different scenarios involving variations of population numbers, demand profiles, climate change impacts and environmental considerations. In some of the more extreme scenarios, involving higher populations and environmental considerations, the planning suggests a new source of water would be required from the late 2040s, this could be provided by water recycling.



In the meantime, Portsmouth Water customers would only receive water from the reservoir during a drought or an emergency scenario. At all other times, the situation would remain as it is today, with water supplied to Portsmouth Water customers coming directly from Bedhampton springs via Farlington Water Treatment Works. Any differences in the taste of the reservoir water (relative to the usual spring water source) will be managed through the treatment process at Farlington so that customers should not notice any change.



On ecological net gain we could do with more clarity on the points made about fluctuating levels at the reservoir and spring water entering the harbour. If less spring water is sent to the reservoir the nitrate level in Langstone Harbour will not reduce. Please could you provide more detail on this?

**If the Hampshire Water Transfer and Water Recycling Scheme were to go ahead, the same quantities of spring water would continue to be captured in the reservoir in line with the original approved plans for the scheme.**

**We anticipate there would be no impact on the environment at the reservoir, including the wetland, if the water recycling scheme was to go ahead. There would be a daily flow of recycled water into the reservoir and an equal daily flow of water from the reservoir directly to Southern Water's drinking water treatment plant at Otterbourne, near Winchester. This would allow seasonal fluctuations in water level to occur as planned.**

Our support for the water recycling scheme is absolutely dependent on there being no detrimental impact on the environment and our ability to maintain excellent drinking water standards. Southern Water is currently carrying out detailed studies and investigations as it explores this option further, including the impact on nitrate levels in Langstone Harbour. We are keeping an open mind as we await the outcome of these.



What we do know already is that the recycled water will have lower nitrate levels than the spring water. We also know that the retention of water in the reservoir reduces nitrate levels over time. So, when the reservoir is in use, nitrate levels of water sent to wastewater treatment from our customers and then discharged after treatment to the local environment will be lower.

In terms of the reservoir mix we were told this would be 50% recycled and 50% spring, but I believe that Tracey Viney said that it would be mainly recycled water to keep the reverse osmosis equipment running at peak performance. Please could you clarify?

**The ratio of spring water and recycled water in Havant Thicket Reservoir would depend on many factors including the time of year, level of rainfall, and whether a drought is in place. We are still carrying out modelling based on these different scenarios and will provide more detailed information once this process is complete.**

The pipeline from the reservoir to Southern Water's Otterbourne water treatment works would always require a 'sweetening flow' of water to maintain good water quality by replacing water in the pipes regularly. This sweetening flow would be provided from the reservoir. In order to maintain the volume of water in the reservoir, this sweetening flow from the reservoir to Otterbourne water treatment works would be matched by an equal input of recycled water of up to 20 million litres per day.

In the winter, when we have an excess of water from Bedhampton and Havant springs, we would use surplus spring water to top up the reservoir.

In drought or emergency scenarios during summer periods, Southern will require a larger supply of water from the reservoir. This would be supplied in two ways:

- The 'Bedhampton to Farlington' route uses the normal direct feed of spring water from Bedhampton to Farlington and in addition blended spring and recycled water would be taken from the reservoir to Farlington too. This water would be treated at Farlington for supply locally, releasing capacity for us to supply Southern at our western boundary.
- The 'SWS Direct Pipe' route would draw on the reservoir and send water to Otterbourne through a new pipeline. Southern Water's needs in the future are forecast to require a supply of up to 90 million litres per day, which would require up to 60 million litres of recycled water to be supplied to the reservoir each day during this period of operation.

In the event of a drought or emergency event during the winter, operation would be the same as a summer drought event, with one difference: during the winter, surplus water from Bedhampton springs would be used to top up the reservoir.

Please could you confirm that the new reservoir will almost always be used to supply Southern Water customers, except in an emergency or extreme drought conditions, while PW customers will normally continue to receive drinking water from the current spring water supply.

**If Southern Water secures planning permission for these proposals, then nearly all of the time the water supply to Portsmouth Water customers would come directly from Bedhampton springs via Farlington Water treatment Works and therefore remain unchanged. Portsmouth Water customers would receive some recycled water mixed with spring water in drought or emergency scenarios (blended water). At all other times, the situation would remain as it is today.**