Draft Water Resource Management Plan 2024

Veolia Water Projects Limited (VWPL)

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Contents

1. NON-TECHNICAL SUMMARY

1.1. Veolia Water Projects Limited

Veolia's Impact 2023 strategy outlines Veolia's ambition to become the benchmark company for ecological transformation, leading change and taking actions for sustainability by integrating strategies that both protect the planet and communities. This includes finding innovative ways and solutions to secure supply of water for its customers, protect and enhance the environment and reduce carbon emissions.

On a local level, Veolia Water Projects Ltd (VWPL) holds a position of great responsibility within the local community, as VWPL are entrusted with supplying services that are essential to life and to the local economy. VWPL therefore needs to ensure that these services are resilient to political, economic and environmental changes.

VWPL operates an Inset located in Tidworth, in Wiltshire, and provides potable and waste water services to approximately 2050 household properties and 120 non-household properties.

VWPL also serves the Ministry of Defence (MOD) under a PFI agreement which includes two MOD garrisons that can house up to 6,000 personnel and approximately 1300 Service Families Accommodation (SFAs).

In order to meet the demand of the water resource zone (WRZ), VWPL manages three groundwater abstraction boreholes under Environment Agency licence SW/043/0024/006. These abstraction boreholes are located within the wider Tidworth WRZ.

This report represents the VWPL draft Water Resource Management Plan (WRMP) 2024. The purpose of this document is to describe how VWPL will manage and maintain the balance between supply and demand for the required statutory period of 25 years.

It should be noted and appreciated that this WRMP excludes any information relating to commercial confidently and does not make reference to the location of VWPL's key assets.

Due to the size and nature of the inset appointment, VWPL does not prepare the business plan aspects of the WRMP. However, VWPL does submit annual Small Company Returns, which detail financial aspects of the operation.

1.2. VWPL WRMP

Water supply companies have a statutory duty under Sections 37A to D of the Water Industry Act 1991, as amended by Section 62 of the Water Act 2003, to prepare an updated WRMP every five years. These plans are submitted to regulatory bodies, including DEFRA and the Environment Agency (EA). Once approved by DEFRA, the draft WRMP will be published for public consultation for 26 weeks.

The WRMP has been developed following the structure proposed in the Environment Agency guidelines, and in consultation with key stakeholders such as OFWAT, the EA and Natural England, who hold expertise in areas associated with water resources and the environment, Wessex Water, the neighbouring water undertaker to whom VWPL provide a bulk water supply, the Ministry of Defence (MoD), CCW, the independent voice for water consumers in England and

Wales, and Wiltshire County Council, who hold a more detailed understanding of proposed developments within the water resource zone.

It also takes into account WRMP requirements defined in the West Country Water Resources Plan that may affect the VWPL supply area, mainly with regards to the regional approach to customer restrictions and associated communications.

There are a number of factors that will shape the VWPL supply/demand balance for the Tidworth WRZ. These include changes to the population within the WRZ, any domestic and commercial developments, economic growth, the impacts of climate change, and the potential requirement to reduce VWPL's abstraction licence in order to protect river flows of the Nine Mile river and Pillhill brook.

To ensure VWPL can fulfil the supply/demand balance, the following actions have been implemented:

- Committing to a leakage reduction of 50% by 2050.
- Reducing household demand towards the target of 110 l/h/d by 2050.
- Improving and maintaining an integrated supply network.
- Continuing to increase metering coverage (especially for MOD garrisons and SFA)
- Developing strong partnerships with others who have an impact on the water environment.
- Educating and supporting customers to manage their household demand by promoting metering and water efficiency.

In order to account for any uncertainties of the forecast supply-demand balance associated with climate change, sustainability changes, and MOD consumption, a headroom allowance is used within all assessments. This headroom allowance figure is then used to calculate whether there will be sufficient water resources to fulfil the predicted demand over the 25 year period. If deficits within the water source are predicted to occur then it will be necessary for VWPL to appraise a range of options to either increase the available water or to reduce the demand. VWPL will then select the most appropriate option(s) to restore the required balance.

However, if the assessment forecasts the water supply to be in surplus through the 25 year period, then VWPL will not be required to take any additional actions.

VWPL WRMP contains the main sections outlined below:

- Annex One - Supply Demand Balance Assessment
- Annex Two - Climate Change and Resilience
- Annex Three - Water Resource Zone and Integrity Assessment
- Annex Four - The Environment and Prevention of Deterioration
- Annex Five - Leakage Assessment

This WRMP has been prepared in conjunction with VWPL's drought management plan which sets out VWPL's operational response to periods of dry weather.

1.3. Water Supplies

In Tidworth, water is abstracted from three (3) groundwater abstraction boreholes, known as Borehole 2 (BH2), Borehole 3 (BH3) and Chalkpit (CKP) and operated under EA abstraction licence (SW/043/0024/006).

The abstracted water is treated at Tidworth and Chalkpit water treatment works and distributed from two strategic reservoirs (Clarendon and Mathew Tanks) through the potable water distribution network to the following areas:

- VWPL Inset area which includes:
    - Tidworth and Perham Down MOD garrisons;
    - Service Family Accommodation (SFA) and private housing in Tidworth town, Ludgershall and Perham Down;
- Three (3) Wessex Water enclaves within Tidworth town, and
- Leckford Bridge potable water bulk supply to a Wessex Water area.

1.4. Imports and exports from the Tidwork network

VWPL exports potable water to Wessex Water at Leckford Bridge which is governed by the Leckford Bridge Bulk Supply Agreement. The Leckford Bridge agreement was renewed in 2021 and for the purpose of VWPL's WRMP, VWPL has assumed that the agreement will continue throughout the statutory period until 2050.

This agreement allows for a maximum transfer of 3.00 Ml/d, an instantaneous maximum flow of 36.5 l/s and a maximum yearly exported volume of 1000 Ml (equivalent to a daily average flow of 2.74 Ml/d).

There is no import of any potable water supply into the VWPL operated WRZ.

1.5. Water Resource Zone

A Water Resource Zone (WRZ) is the geographical area used to develop forecasts of supply and demand and supply/demand balances. The WRZ describes an area within which supply infrastructure and demand centres are linked such that customers in the same WRZ experience the same risk of supply failure.

The Tidworth Inset area represents a single WRZ. All VWPL customers receive their water supply through a single interconnected supply system, and there are currently no plans to expand outside of the existing network. All VWPL customers share the same risk of supply failure. Also, the Leckford Bridge bulk supply is operated through a single supply point fed from VWPL's distribution network; so the risk of supply failure to this export is considered the same.

The WRZ methodology and assessment is discussed in more detail within Annex Three of this WRMP.

1.6. Water Resource Integrity

The WRMP complies with all statutory drinking water quality obligations relevant to the VWPL operated WRZ, which are regulated by the Drinking Water Inspectorate.

The overall water quality within the Tidworth network is considered to be of a high standard due to the nature of the chalk-fed environment. The water quality is very similar across the three boreholes however land use activities can have an effect on the groundwater quality at individual boreholes.

As part of the water integrity assessment, VWPL undertook a desk-based study that reviewed industrial or MoD land uses and activities within the network and wider catchment area that could influence groundwater quality. The assessment and identified hazards are summarised in Annex Three of this WRMP.

1.7. Resilience / Vulnerability Assessment

In accordance with the requirements of the WRMP EA guidance, VWPL needed to demonstrate that we are or will be resilient to a 1 in 500 year drought event and/or resilient to the implementation of exceptional demand restrictions on customers by 2039.

VWPL completed a full vulnerability assessment as part of the WRMP24 preparation work and has confirmed that VWPL is resilient to a repeat of any drought conditions experienced within the last 100 years and a potential 1 in 500 year event without the need to restrict customer consumption further than Temporary Use Bans (TUBs).

VWPL vulnerability assessment is detailed in Annex Two of this WRMP report.

1.8. Climate Change Assessment

The daily operations and services of Water Supply Companies are affected by the changing climate and are therefore required to assess the potential impacts climate change may have on the sustainability of their supply.

VWPL reviewed the UKCP18 climate projections on changing rainfall, evaporation and temperature patterns and assessed the impact these factors may have on the wider environment and groundwater recharge and ultimately on the deployable outputs of the abstraction boreholes.

This assessment confirmed that the potential impact of climate change on the Tidworth supply system is considered to be low.

The full climate change assessment is detailed in Annex Two of this WRMP report.

1.9. Sustainability Changes to Abstraction Licence

The main way that the EA ensures that daily operations do not present an unacceptable impact on the environment is through abstraction licensing. The volume of water that can be abstracted from the three borehole wells (Chalkpit, BH2 and BH3) is limited to an annual daily average of 9.02 Ml/d and a peak daily flow of 12 Ml/d as specified in the EA licence SW/043/0024/006.

Since VWPL acquired the inset in 2007, VWPL have worked in conjunction with the EA and other regulatory bodies to investigate and assess the potential impact of VWPL abstraction on local watercourses, groundwater levels and the ecological systems they support. Most recently, as part

of the WINEP PR19 AMP7, it has been established that VWPL abstraction activity within the Wessex Basin was categorised as having a moderate deterioration risk due to its impact on the Nine Mile River and Pillhill brook. Full details of this investigation are discussed in Annexes Two and Four of this report.

The EA confirmed that within VWPL abstraction licence renewal in 2025, VWPL should expect the current permitted abstraction volumes of 9.00Ml/d to be capped in order to prevent deterioration within the wider environment.

VWPL acknowledges that ensuring the sustainability of local watercourses and ecology is an ongoing process, particularly to ensure compliance with the Water Framework Directive. At the time of producing the draft WRMP, the reduction parameters had not yet been agreed with the EA and DEFRA, however, for the purpose of the assessment, VWPL has made an assumption that the licence could be capped at 7.50 Ml/d, but this figure might change. VWPL expects that by the time the final WRMP is issued, this figure would have been finalised and integrated in the final WRMP.

Therefore, in this draft WRMP, two sets of planning tables were produced, presenting the two licensing scenario:

- The current abstraction licence of 9.00 Ml/d.
- A capped abstraction licence of 7.50 Ml/d based upon the recent-actual scenario*

**Note: The recent actual abstraction licence figure of 7.50 Ml/d has not been confirmed by the EA and might change in the final version of the WRMP as the other licence renewal criteria (growth and demand requirements) are being reviewed.*

1.10. Supply Demand Balance

VWPL WRMP is supported by planning data tables which combine the historical data for 2019/20 to 2021/22 (data submitted in annual returns for those years) and the forecast supply-demand for 2022/23 to 2049/50 with key supporting information, including forecast leakage. They are used to help regulators, water company customers and other organisations understand and appraise the water company's plan.

The overall supply/demand balance of the WRZ is assessed by comparing the forecast of total water available for use with the forecast of demand (distribution input) plus target headroom. Total water available for use accounts for the deployable output of VWPL operated sources, minus the allowances for source outage and water used by treatment processes and the net balance of exports with neighbouring companies.

As part of the WRMP process, two supply/demand balances are produced for each scenario, the baseline supply/demand and the final supply/demand scenario accounting for any changes resulting from any agreed options.

Within both supply/demand balances, VWPL has provided a Dry Year Annual Average (DYAA) and a Dry Year Critical Period (DYCP). This has been produced to show how the WRMP has allowed for peak strain events, including seasonal demand associated with a heatwave, winter leakage or an increase in MoD consumption. VWPL's WRMP tables present a supply/demand balance when VWPL's supplies are low and the network demand is high.

In addition to this, VWPL has considered different scenarios to take into account the assumptions and factors that have the greatest influence and impacts on the WRMP and produced a WRMP

table for each scenario. The following section presents the stress-testing scenario process that VWPL carried out and the scenarios that have been considered by VWPL.

The full details of the assumptions used to complete the supply/demand balance and the planning tables are presented in Annex One of this report.

1.10.1. Stress-testing

Stress testing and sensitivity analysis is a critical component of the decision-making framework. It is designed to help water companies understand the assumptions and factors that have the greatest influence and impacts on the WRMP. The process will provide confidence that the plan is robust under a range of uncertainties that have the potential to directly affect daily operations and services.

The following scenarios have been considered by VWPL when establishing its supply/demand balance:

- Potential Sustainability Reductions: Reduction in Abstraction Licence
- Revoking the Leckford Bridge Bulk Transfer
- Reduction in Household Demand
- Large Outage.

Full details of the stress-testing are presented in section 6.1 of Annex One of this report.

1.10.2. Supply Demand baseline

In order to produce a baseline supply/demand balance for its planning tables, VWPL had to select a year to model. Within the WRMP19 cycle, there have been a number of unforeseen circumstances associated with the COVID-19 pandemic, which has heavily influenced water consumption within the Tidworth network. VWPL has therefore selected 2019/20 for the baseline year for the purpose of the assessment.

VWPL's supply-demand baseline has been prepared based on the responsiveness of the Tidworth network to the current supply constraints and the requirements of elevated demand.

Full details of the assumptions used for the baseline supply/demand balance are presented in section 6.2 of Annex One of this report.

Two baseline scenarios were run based on expected sustainability changes to the abstraction licence:

- Under VWPL's current abstraction licence the baseline supply demand balance shows that when VWPL's supplies are low and network demand is high, a deficit occurs from 2040/41 and is recorded as -0.05 Ml/d and -0.01 Ml/d for a DYAA and DYCP scenario respectively.
- If the VWPL abstraction licence were to be capped at 7.50 Ml/d, the baseline supply demand shows that a deficit will occur from 2025/26 (year where the licence capping will apply) and for the duration of the planning period. The deficit is recorded as -0.19 Ml/d and -0.17 Ml/d for a DYAA and DYCP scenario respectively.

1.10.3. Option Appraisal

The VWPL baseline supply-demand balance predicted that VWPL will have a deficit of supply resources over demand within the WRMP24 planning period, so VWPL needed to produce a demand solution in order to reduce the supply/demand deficit. In accordance with the aspirations and requirements of the Government, regulators for the wider water industry and other stakeholders, VWPL has therefore considered possible options to:

- Ensure the efficient use of water resources within the network
- Help maintain positive supply/demand balance
- Address government/regulatory expectations (including resilience to 1:500 drought event, reduction of household pcc to 110l/h/d and reduction of leakage by 50% by 2050)
- Improve sustainability within the network.

The full details of the option review and assessment, along with demand saving benefits, are presented in section 6.3 of Annex One of this report.

The preferred options that have been incorporated in the planning tables are:

- Periodic validation of unmeasured Non-Household consumption
- Water efficiency/saving campaign and engagement
- Metering of MOD garrisons
- Universal metering for Service Family Accommodations
- Enhanced leakage management

These options will not result in any new development or water abstraction schemes and will largely be implemented within urban MoD areas of the network. Therefore, it is considered that these options will not have a significant impact on the wider environment or on the integrity of European sites. As such, VWPL concluded that a Strategic Environmental Assessment (SEA) would not be required for the options.

1.10.4. Leakage

Reducing leakage is an essential part of managing demand and is therefore a core focus of the WRMP24. OFWAT has issued a new performance commitment that requires water companies to reduce their overall network leakage by 16% by 2025 (based on 2017/18) and by 2025 50% by 2050.

VWPL's long term leakage management plan for the Tidworth network to achieve the ambitious leakage targets is detailed in Annex Five of this WRMP report.

VWPL forecasts to achieve the OFWAT leakage targets with a predicted leakage figure of 1.08 Ml/d in 2025/26 (against a leakage target of 1.16 Ml/d) and 0.63 Ml/d in 2049/50 (against a leakage target of 0.69 Ml/d).

1.10.5. Final Supply Demand Balance

From the VWPL baseline supply-demand balance, VWPL has applied the water demand benefits of the preferred options and produced the final supply/demand balance.

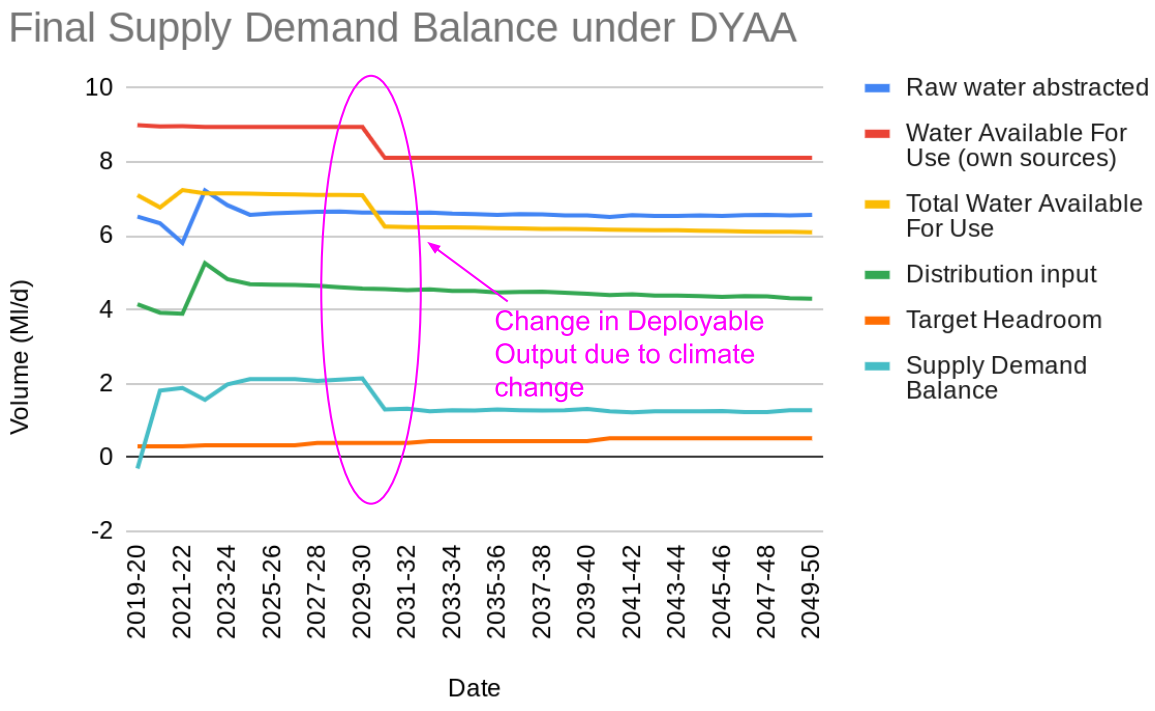
Similarly to the baseline, two final supply/demand scenarios were run based on expected sustainability changes to the abstraction licence:

- Under the current abstraction licence of 9.00 Ml/d, VWPL forecast a surplus in demand regardless of the Leckford Bridge bulk supply being operated at its maximum or recent actuals. VWPL will be able to achieve all planned levels of service throughout the planning period.

  The dry year annual average (DYAA) is illustrated in Figure 1 and the dry year critical period (DYCP) is shown in Figure 2.

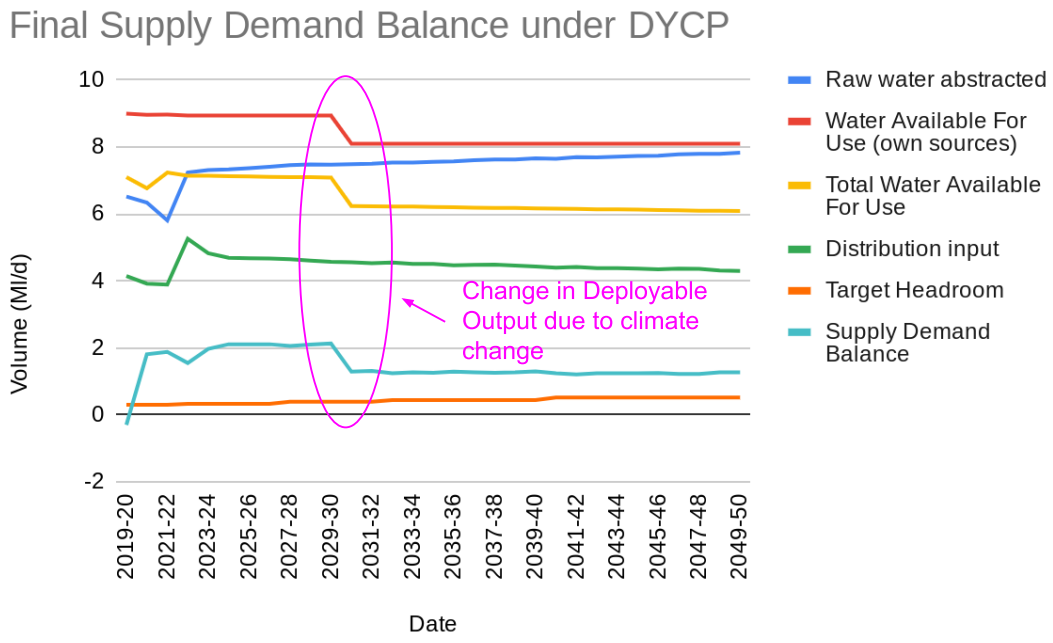
  With the Leckford Bridge bulk supply at recent actuals, the final supply/demand balance under a DYAA scenario for the Tidworth network forecasts a surplus over the planning period decreasing from 2.12 Ml/d in 2025/26 to 1.28 Ml/d in 2049/50.

Figure 1 - Predicted supply/demand balance under current abstraction licence in a DYAA



With the Leckford Bridge bulk supply at recent actuals, the final supply/demand balance under a DYCP scenario for the Tidworth network has predicted a surplus over the planning period decreasing from 2.11 Ml/d in 2025/26 to 1.27 Ml/d in 2049/50.

Figure 2 - Predicted supply/demand balance under current abstraction licence in a DYCP

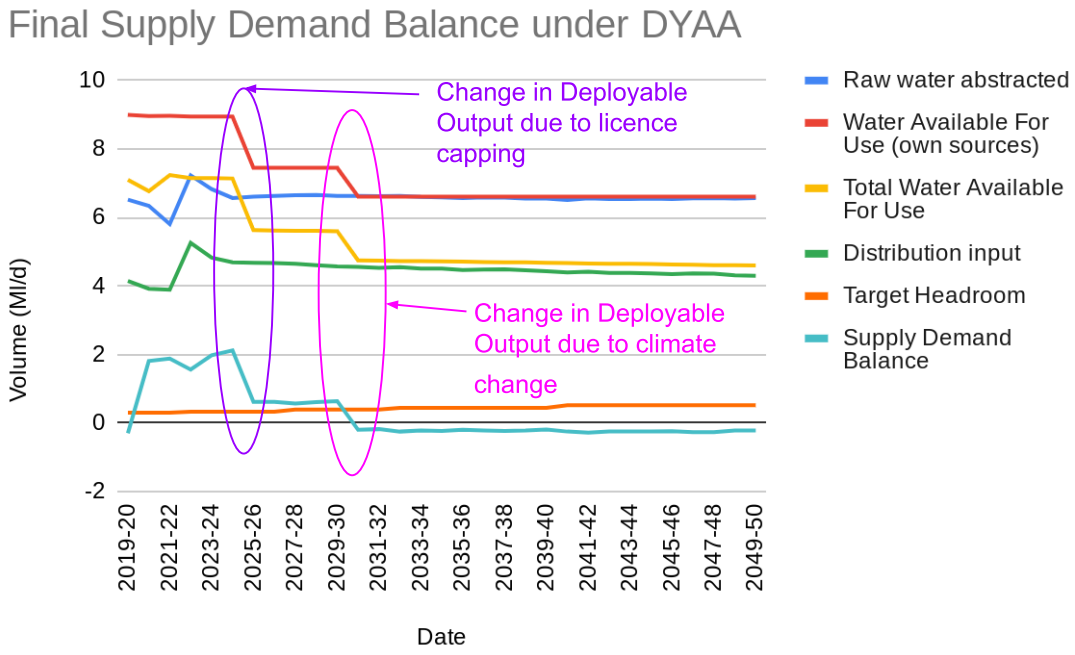


- If the abstraction licence were to be capped at 7.50 Ml/d, with the Leckford Bridge bulk supply at recent actuals, VWPL forecast a deficit in demand from 2030 and for the remainder of the planning period (and from 2025 with the Leckford Bridge bulk supply at 2.74 Mld).

  The dry year annual average (DYAA) is illustrated in Figure 3 and the dry year critical period (DYCP) is shown in Figure 4.

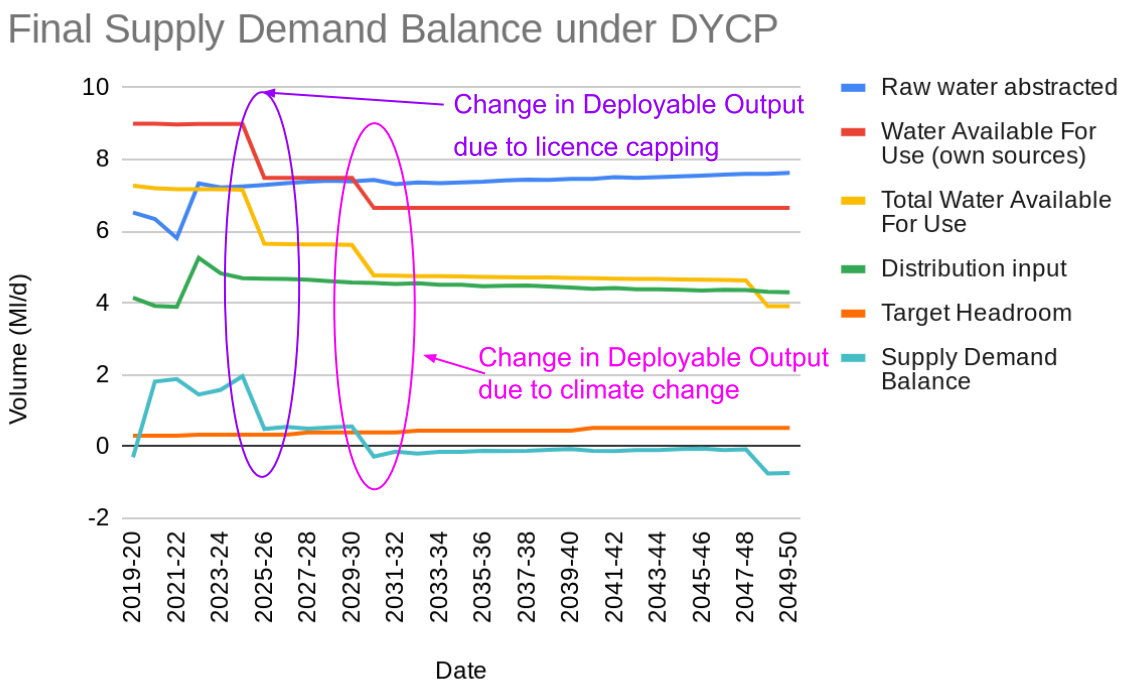
  With the Leckford Bridge bulk supply at recent actuals, the final supply/demand balance under a DYAA scenario for the Tidworth network has predicted a surplus over the planning period decreasing from 0.62 Ml/d in 2025/26 to a deficit of -0.22 Ml/d in 2049/50.

Figure 3 - Predicted supply/demand balance under capped abstraction licence in a DYAA



With the Leckford Bridge bulk supply at recent actuals, the final supply/demand balance under a DYAA scenario for the Tidworth network has predicted a surplus over the planning period decreasing from 0.49 Ml/d in 2025/26 toa deficit of -0.74 Ml/d in 2049/50.

Figure 4 - Predicted supply/demand balance under capped abstraction licence in a DYCP



Given the high likelihood of VWPL abstraction being capped and the forecast supply-demand deficit which would occur under such operating conditions, before the issue of the final WRMP, VWPL is planning to:

- Continue engaging with the EA to confirm the actual capped volumes

- Confirm MOD consumption requirements once metering is in place
- Review and confirm with Wessex Water the Leckford Bridge bulk supply requirements if the licence were to be capped.
- Investigate further the ability to reduce household pcc to the 100 l/h/d target.

1.11. Environmental Destination

The Government's 25 year Environmental Plan places great importance on enhancing and protecting the biodiversity of the United Kingdom. In accordance with the regulatory guidance, VWPL has produced a WISER report as part of the PR19 process and an updated WISER report is being completed for the PR24 submission.

Under the PR19 WINEP AMP7 investigation, VWPL has assessed and investigated how to manage the potential risk of deterioration to the waterbodies and associated ecosystems resulting from VWPL operations. While the objectives of the PR24 WINEP AMP8 have not been agreed yet, based on pre-consultations held with the EA and Natural England, VWPL is planning to:

- Lead on the completion of the option appraisal and the option selection for the Nine Mile River
- Investigate the impact of its abstraction on other water bodies within the Wessex Basin such as the River Avon and the River Bourne.
- Carry out a phosphorus investigation on the River Bourne.
- Continue implementing the biodiversity net gain improvement works started during PR19

Also, as a leader in environmental solutions, Veolia is committed to drive emissions reductions and achieve Net Zero across its business operations by 2050. During the WRMP24 cycle, VWPL will continue to manage and reduce its carbon footprint in line with Veolia's overarching Impact 2023 strategy.

1.12. Changes to VWPL WRMP 2019

The regulatory framework of the WRMP 2024 has required VWPL to make significant changes to its supply/demand strategy, despite the Water Resource Zone remaining unchanged and the supply system being the same.

The main changes to the WRMP19 assumptions are presented below:

- Potential reduction of the Deployable Output due to licence capping
- Increase of household demand due to the transfer of MOD Service Family Accommodations at the end of the PFI contract from unmetered non-household to household
- Reduction of MOD consumption, the baseline of WRMP19 not being representative of consumption recorded over the past three years
- Increase of leakage volumes, the baseline of WRMP19 not being representative of leakage volumes recorded over the past three years
- A change in leakage reporting methodology between WRMP19 and WRMP24 to comply with OFWAT's new reporting guidance

- Increase of metering penetration

Full details of the assumptions used for the baseline supply/demand balance are presented in section 7 of Annex One of this report.

1.13. Conclusion

VWPL groundwater sources are resilient to a repeat of any drought conditions experienced within the last 100 years and a 1 in 500 year event without the need to restrict customer consumption further than Temporary Use Bans (TUBs), and the impact of climate change on the Tidworth supply system is expected to be low.

However PR19 WINEP Investigation has confirmed the potential risk of deterioration from the VWPL abstraction activities on the Wessex Basin, neighbouring water bodies and associated ecosystem. The EA has confirmed that VWPL should expect the current permitted abstraction volumes of 9.00Ml/d to be capped during the abstraction licence renewal process in 2025, in order to prevent deterioration within the wider environment. On that basis, VWPL has planned for two scenarios, one for each licence condition.

VWPL baseline supply/demand balance for both scenarios predicted that VWPL will have a deficit of supply resources versus demand within the WRMP24 planning period, so VWPL has considered the implementation of water demand saving options during the 25 year statutory period.

Under the current abstraction licence of 9.00 Ml/d, VWPL final supply/demand balance (integrating the demand saving option) will be in surplus and VWPL will be able to achieve all planned levels of service throughout the planning period. However if the abstraction licence were to be capped at 7.50 Ml/d, VWPL final supply/demand would be in deficit from 2030 and for the remainder of the planning period

Given the uncertainties around licence capping and demand requirements during the preparation of the draft WRMP, VWPL will:

- Continue engaging with the EA to confirm the actual capped volumes
- Confirm MOD consumption requirements once metering is in place
- Review and confirm with Wessex Water the Leckford Bridge bulk supply requirements if the licence were to be capped.
- Investigate further the ability to reduce household pcc to the 100 l/h/d target.

The outcomes of these actions will be integrated into the final WRMP2024.

Contact Us

If you would like to discuss any aspect of the water resource management plan, then please contact us at uk.veolia.iwe.tidworth-regulatory.mailbox@veolia.com.

For further details please visit our website https://www.veolia.co.uk/tidworth-operations where the full water resource management plan is available to download.

2. ANNEXES

Annex One - Supply Demand Balance Assessment

Annex Two - Resilience and Climate Change

Annex Three - Water Resource Zone and Integrity Assessment

Annex Four - The Environment and Prevention of Deterioration

Annex Five - Leakage Assessment

3. APPENDICES

Appendix One - References

Appendix Two - Planning Tables