

UUWR_35

PR24 Draft Determination: UUW Representation

Area of representation: Cost and PCD – Raw water quality deterioration

August 2024

This document outlines our representation to Ofwat's draft determination for the Raw water quality deterioration enhancement case and associated PCD.

Reference to draft determination documents: Enhancement feeder models – Water, PR24-DD-W-Raw-water-quality-deterioration

1. Key point

- **The PCD associated with this enhancement is fundamentally incorrect:** Ofwat has included Vyrnwy re-lining in AMP8 totex only and delivery of unrelated DWI Legal Instruments in the PCD model. We provide corrected PCDs that we believe Ofwat should reflect in the final determination.
- **Fishmoor WTW deep dive results in 30% allowance adjustment:** We provide additional evidence in relation to optioneering and why this solution is fully justified as being in the best interests of customers. This should provide Ofwat with sufficient evidence to remove its adjustment at the final determination.
- **17% efficiency factor applied to 4 remaining schemes:** We consider that the "shallow dive" outcome is unreasonable and should be reversed.

2. UUW's PR24 proposal

Included in our October business plan submission was an enhancement claim to address raw water quality deterioration at five named water treatment works (WTW), Cowpe WTW, Hurlleston WTW, Fishmoor WTW, Lamaload WTW and Ridgegate WTW, October 2023 business plan document *UUW60 – Water quality enhancement claims; (case 5)*.

The value of this enhancement claim was £41.586 million to install new treatment processes at the affected WTW to secure supplies to over 363,000 customers with water free from unpleasant tastes and odours arising from the presence of geosmin and/or 2-methyl isoborneol (2-MIB).

We proposed customer protection in the form of a PCD based on project milestones associated with the five legal instruments at the named WTWs.

The solutions put forward for each WTW and the associated capex are described in Table 1.

Table 1: RWD Enhancement Submission Summary

WTW	Technology Summary	Estimated Cost to Deliver (Capex)
Cowpe	GAC filter refurbishment	£5,299k
Fishmoor	Advanced oxidation process	£11,794k
Hurlleston	GAC filter refurbishment	£9,691k
Lamaload	GAC contactor installation	£7,199k
Ridgegate	GAC contactor installation	£7,196k
Total		£41,179k

A desktop optioneering study was undertaken for each WTW to determine the most feasible and cost effective solution(s), based on UUW experience, literature reviews, industry research and industry sharing of best practices. The presence of geosmin and 2-MIB in upland raw water sources is not a new issue for UUW. However the occurrence of these compounds in the raw water sources to the five identified WTWs has intensified to the point where additional, specific, treatment processes are now necessary in order to continue the provision of wholesome drinking water.

Geosmin and 2-MIB cannot be readily removed by conventional treatment processes. Treatment with activated carbon is sufficient in most cases to remove geosmin to undetectable levels. However in more severe cases, such as high 2-MIB loading, more advanced technology, such as ozone advanced oxidation treatment, is required to achieve the necessary removal rates.

3. Draft determination position

3.1 Allowance Adjustments

Ofwat has published the outcome of a deep dive assessment on the Fishmoor WTW aspect of this enhancement case only. The deep dive resulted in some concerns raised over whether the investment is the best option for customers and minor concerns whether the cost is efficient. This led to a 30% allowance adjustment for the Fishmoor WTW scheme. Ofwat has applied a 17% adjustment to the remainder of the enhancement allowance based on a shallow dive efficiency model. The outputs of the deep dive and shallow dive in terms of capex is displayed in Table 2.

Table 2: UUW RWD Allowance Adjustments

WTW	Estimated Cost to Deliver (Capex)	Allowance Adjustment Applied	Adjusted Capex
Cowpe	£5,299k	17%	£4,398k
Fishmoor	£11,794k	30%	£8,256k
Hurleston	£9,691k	17%	£8,044k
Lamaload	£7,199k	17%	£5,975k
Ridgegate	£7,196k	17%	£5,973k
Total	£41,179k		£32,645

3.2 PCD

Ofwat has utilised new DWI legal instruments in the development of PCDs for enhancements under the 'Raw Water Deterioration' (RWD) and 'Taste, Odour, Colour' (TOC) drivers and has therefore included totex for all schemes submitted under these drivers.

For UUW, the schemes submitted under these driver codes are:

- Cowpe WTW – RWD
- Hurleston WTW – RWD
- Fishmoor WTW – RWD
- Lamaload WTW – RWD
- Ridgegate WTW – RWD
- Vyrnwy relining in AMP8 - TOC

The total WQ allowed by Ofwat, following deep and shallow dive assessments, is £141.658m.

The PCD associated with this scheme includes the delivery of a total of 7 legal instruments:

- UUT-2023-00005 Hurleston WTW, 2-MIB, Geosim, taste, odour
- UUT-2023-00006 Cowpe WTW, 2-MIB, Geosim, taste, odour
- UUT-2023-00007 Ridgegate WTW, 2-MIB, Geosim, taste, odour
- UUT-2023-00008 Fishmoor WTW, 2-MIB, Geosim, taste, odour
- UUT-2023-00009 Lamaload WTW, 2-MIB, Geosim, taste, odour
- UUT-2023-00010 Company wide PFAS strategy
- UUT-2023-00011 Company wide Lead strategy

This has resulted in a non-delivery PCD payment rate of £20.237m per unit.

4. Issues and implications

4.1 Fishmoor WTW Deep Dive

4.1.1 Best Option for Customers

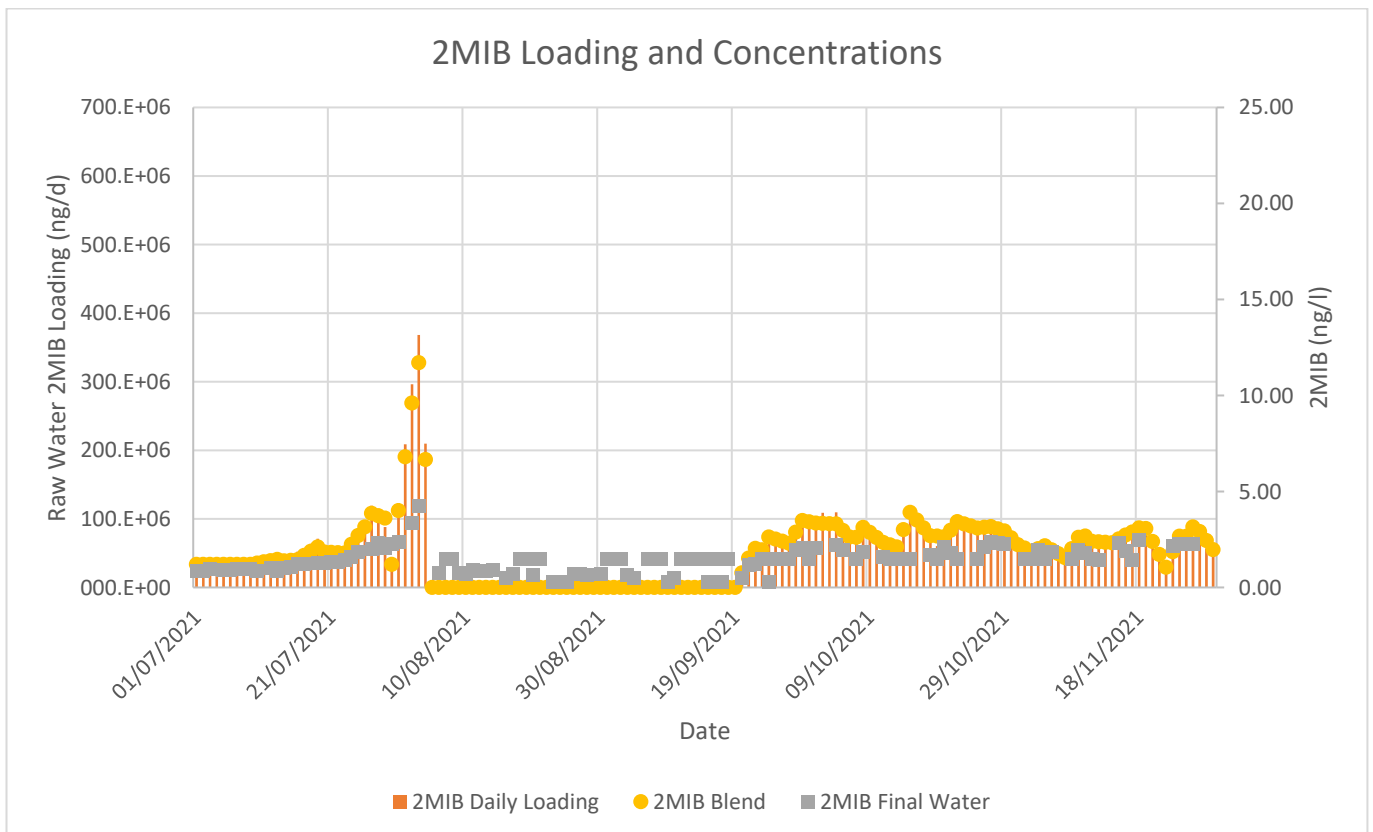
Ofwat stated it had concerns whether the investment is the best option for customers at Fishmoor WTW.

Our business plan submission outlined two options were considered at Fishmoor WTW: GAC filter media refurbishment and ozone advanced oxidation. Our selection process resulted in ozone advanced oxidation being chosen as the most appropriate solution, despite the costs being higher. Ofwat has commented on this in the deep dive analysis, stating that sufficient and convincing evidence was not provided to demonstrate the chosen solution represents the best value.

In AMP7, we undertook work at Rivington WTW (an upland sourced site, similarly to Fishmoor WTW) to convert first stage filter media to GAC following increasing levels of 2-MIB in the incoming raw water. Despite the use of GAC filter media, once the levels of 2-MIB in the primary raw water source began to increase, sample results identified what appeared to be exponential breakthrough of 2-MIB in the final water. This is shown in Figure 1 below. A laboratory study was carried out into the GAC media performance which concluded that at moderate levels of 2-MIB in the feed water, final water 2-MIB concentration reached the taste and odour threshold for 2-MIB. The laboratory study also tested distilled water through GAC media that had previously filtered 2-MIB spiked water and found that the GAC was leaching 2-MIB into the distilled water. This suggests that GAC for 2-MIB removal is not as robust a solution as previously thought when treating high loads of 2-MIB.

Through lengthy investigations at Rivington WTW, our Senior Process Engineers concluded that the GAC media was quickly becoming saturated with 2-MIB which resulted in a rapid deterioration in performance. It is for this reason that ozone advanced oxidation was selected for Fishmoor WTW as the best value solution to treat the high loads of 2-MIB as it is deemed a more robust solution that will remove 2-MIB to below detectable levels reliably.

Figure 1: Rivington WTW 2-MIB Loading and Concentrations



Ofwat's deep dive assessment also stated that UW did not provide sufficient and convincing evidence that an appropriate number of solutions was considered. We refute this point as treatment options to effectively remove geosmin and 2-MIB are finite and the only viable technologies that are approved for use under Regulation 31 at the treatment stage are 1) powder activated carbon (PAC) dosing, 2) filtration through GAC and 3) advanced oxidation. PAC dosing is already employed at Fishmoor WTW and has proven to be insufficient. As set out above, advanced oxidation has also been proven to be unsuitable.

Our business plan submission, October 2023 business plan document *UW60 – Water quality enhancement claims* (case 5, Table 3) also includes six generic high-level solutions (GHLS) to address raw water deterioration and the rationale behind whether we have chosen to progress this option or not. Of the six GHLS put forward, we are progressing with three options: Catchment interventions through our Water WINEP, grey solutions and investigations and studies into the root cause of geosmin and 2-MIB formation through our Water WINEP.

For the remainder of the sites included in this enhancement case, the primary issue in the raw water is increasing levels of geosmin, a compound with similar characteristics as 2-MIB, but a different compound, nonetheless. Our experience of treating high levels of geosmin in impounding reservoirs has shown that GAC is a sufficient and an appropriate level of treatment when geosmin alone is present. We therefore opted for GAC installation, either in the form of filter media or containerised vessels known as contactors, as opposed to the more expensive ozone advanced oxidation process at all named sites.

4.2 Cost Efficiency

Ofwat has applied a 17% cost challenge to UW following shallow dive assessments of Water enhancement cases and a 10% allowance adjustment following a deep dive assessment of Fishmoor WTW enhancement scheme. We would like to take this opportunity to provide further clarification of our robust, efficient and assured approach to capital investments.

During development of the October 2023 business plan, the UW Commercial, Engineering and Capital Delivery department (CEC) reviewed the capital investment programme to determine the typical type, size, value and complexity of solutions required for the assets to be renewed or maintained across the water and wastewater infrastructure and non-infrastructure programme to ensure the procurement strategy is fit for purpose to deliver an efficient programme.

CEC then reviewed the procurement strategy to determine what type of commercial construction, supply, engineering and consultancy frameworks need to be procured to ensure that UW has the most appropriate partners in place to deliver the capital programme below budget and to the right timescales.

Each framework is going through a rigorous procurement process so that each of the bidders commercial/value, technical, health and safety, relevant experience and staff CV's can be assessed and scored, to ensure that the Framework partners chosen will have demonstrated through a competitive process, their proven technical expertise and efficient commercial pricing.

In addition, when these framework partners are utilised, dependent on the need, they will either undergo a further mini-competition through the framework or they will price a single source solution, but in either approach their pricing levels will be in accordance with their competitive framework pricing levels, and they will be checked and validated against the UW independent internal estimate. Challenges are made as necessary to ensure commercial value is maximised and as well as technical compliance.

If the framework approach is not appropriate for any project, UW also procures direct to the market where it seeks competitive tenders from a range of suppliers/contractors and allows market forces to ensure a competitive price is obtained. These are also validated against the UW independent internal estimate.

Once the Contract has been awarded to the successful bidder, the contract is rigorously managed by the UW project team in accordance with the Contract. The UW Project Manager, Quantity Surveyor, Construction Supervisor and Engineering representative will ensure that any additional variations are kept to a minimum and valued appropriately, all costs and payments are in accordance with the contract and the contractor is being

monitored on site to ensure efficient delivery of construction plant and equipment and to UUW specification and standards.

Each project will be audited by UUW's cost assurance consultants to ensure that only legitimate costs are paid.

Final accounts at the end of each project are agreed timely and there is a clear escalation process to deal with any disagreements or disputes by use of senior representatives.

UUW continuously seeks lessons learnt to improve efficiency in future processes and seeks innovation to continuously improve leaner solutions and ways of working.

4.3 PCD

We disagree with Ofwat's choice to include company wide lead and PFAS strategies in the PCD model for RWD and TOC as this is not in line with the purpose of a PCD and is therefore wholly inappropriate. Ofwat's PR24 final methodology states *'For investments where the outputs do not map neatly to performance commitments companies should identify the price control deliverables to protect against non-delivery of the primary and wider outputs.'* This signifies that PCDs are to protect customers against non-delivery of enhancement **investments**.

The company wide lead and PFAS strategies have respective Section 18 Undertakings, enabling the DWI to take enforcement action acting on behalf of the Secretary of State and Welsh Ministers. A condition of the Undertakings is to provide an annual report to DWI on progress made with carrying out the steps set out in the action plan. A PCD is unnecessary for application of these Legal Instruments which are the subject of a legally enforceable undertaking from the DWI.

The inclusion of UUT-2023-00010 company wide PFAS strategy is an illegitimate use of the PCD mechanism as this undertaking does not have any associated enhancement deliverables or investment. Whilst the DWI have supported two schemes, at named WTW, and we have included an additional enhancement case with our draft determination response, these sites will be covered by Notices and removed from the PFAS Undertaking.

The company wide lead strategy is linked to our lead enhancement case October 2023 business plan document *UUW60 – Water quality enhancement claims, (case 3)* which also has a PCD associated with it. This deliverable is therefore being measured twice, which is not appropriate. We note that in Ofwat's PCD webinar held on 31 July 2024, Ofwat commented that the inclusion of Lead and PFAS strategies is to ensure a level of fairness throughout the industry, as not all companies have a PCD associated with lead enhancement. We disagree with this statement and believe that by including the lead strategy in the RWD and TOC PCD for the nine companies with a specific lead PCD, this is entirely unfair to those companies who consequently have **two PCDs** associated with lead delivery.

Additionally, Ofwat has neglected to include any deliverables associated with the Vyrnwy LDTM re-lining in AMP8 for which UUW has a Final Enforcement Order in place from the DWI. Whilst we understand the decision of Ofwat to combine RWD and TOC enhancements for some companies where the proposed schemes under each driver are of a similar nature, this is not the case for UUW. The Vyrnwy LDTM re-lining in AMP8 is a large scheme with an estimated totex of over 3.5 times that of the RWD schemes at five named WTWs. In combining the totex, the non-delivery unit rate for each of the named WTW is £20.237m which is **4.6 times** the allowed capex to deliver the smallest scheme at Cowpe WTW and **2.5 times** the allowed capex to deliver the largest scheme at Fishmoor WTW. This is entirely disproportionate.

5. Approach for final determination

5.1 Enhancement Allowance

We recommend Ofwat revisits the enhancement allowance adjustments made to the RWD enhancement case based on the additional evidence provided above and reinstates the full amount assessed. The scopes of the projects included in this enhancement claim have been designed to deliver the requirements of the DWI Notices and reduce water quality risks as a result of deteriorating raw water, at an efficient cost. Without sufficient

enhancement allowance, a proportion of these projects would have to be funded from base maintenance allowance, which would place unacceptable levels of stretch on our maintenance programme which is crucial to maintaining the asset health of other UUW assets.

5.2 PCD

We firmly believe that Ofwat should restate the deliverables and totex included in the Water Quality PCD to include RWD aspects only.

The current PCD includes totex for Vyrnwy LDTM re-lining in AMP8 (Improvements to taste, odour and colour) which unjustly inflates the unit rate for non-delivery of the five taste and odour improvement schemes. We have included a revised PCD for Vyrnwy LDTM re-lining in AMP8 which appropriately matches enhancement investment to the required deliverables as part of our draft determination representations ([UUWR 34 – Vyrnwy re-lining in AMP8](#)).

In addition, the description lists seven new DWI Legal Instruments including Company wide Lead and PFAS Strategies. Whilst the Lead Strategy is covered by the Lead Undertaking, the deliverables are not associated with the RWD enhancement case. The PFAS Strategy Undertaking does not have any enhancement deliverables associated with it. The DWI has supported two PFAS Notices, the enhancement case for which is included as part of our response to draft determination, we propose the associated totex for these schemes is included in the PCD.

We strongly recommend that the PCD deliverables are amended to the five Notices at Cowpe, Fishmoor, Hurleston, Lamaload and Ridgegate WTWs and additional Notices for PFAS at Royal Oak WTW and Wickenhall WTW, where the enhancement investment will be spent, as displayed in Table 3.

Table 3: Redesigned PCD

Company	UUW
Enhancement area	Water Quality (RWD)
PCD No.	

Common requirements	See Section 7.2.2 of Price control deliverable appendix
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Additional company specific requirements	
Description	<p>Delivery of 7 new DWI legal instruments:</p> <ul style="list-style-type: none"> - UUT-2023-00005 Hurlleston WTW, 2-MIB, Geosim, taste, odour - UUT-2023-00006 Cowpe WTW, 2-MIB, Geosim, taste, odour - UUT-2023-00007 Ridgeway WTW, 2-MIB, Geosim, taste, odour - UUT-2023-00008 Fishmoor WTW, 2-MIB, Geosim, taste, odour - UUT-2023-00009 Lamaload WTW, 2-MIB, Geosim, taste, odour - UUT-2024-00002 Royal Oak WTW, PFAS - UUT-2024-00003 Wickenhall WTW, PFAS
Output measurement and reporting	None
Conditions on scheme	None
Assurance	None

Non-delivery PCD payment	Unit	Payment rate
Water Quality	£m per unit	13.107

RWD assessed	TOC assessed	Total WQ assessed	RWD allowed	TOC allowed	Total WQ allowed	Nr of legal instruments	Unit rate
91.750	n/a	91.750	91.750	n/a	91.750	7	13.107

Time incentives PCD rate	Unit	Under-performance	Out-performance
n/a	n/a	n/a	n/a

PCD outputs (cumulative)	Unit	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
2-MIB, Geosim, taste, odour	DWI legal instrument	0	0	0	0	0	0	0	7	7	7	7	7

PCD outputs (legal instruments)	Unit	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
2-MIB, Geosim, taste, odour	DWI legal instrument								Hurleston, Cowpe, Ridgegate, Fishmoor, Lamaload, Royal Oak, Wickenhall				