Health Based Target Deficit Removal for Drinking Water Agreement

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Document approval and issue notice

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1. Executive summary

The Health Based Target Deficit Removal for Drinking Water Agreement (the Agreement) outlines the key activities TasWater will undertake to remove the Log Reduction Value (LRV) treatment shortfall identified in accordance with the Health Based Target (HBT) methodology set out in the Australian Drinking Water Guidelines (ADWG) and the HBT manual. TasWater will apply a risk based approach and the agreement details the timeframes to remove the risk, the short-term measures to appropriately mange the risk in the interim and frequency of reporting to the Department of Health.

The timeframes will apply to existing treatment deficits from the date of this agreement and any new deficits from when the risk is identified.

2. Background

TasWater calculates LRV treatment shortfall in accordance with the HBT methodology set out in the ADWG and the HBT manual. Risk ratings are applied based on the LRV shortfall in accordance with the Water Safety Continuum included in the ADWG.

The values used to assess risk ratings consider the following assumptions:

- Treatment shortfall is based on the highest LRV shortfall calculated from each of the three pathogen classes. If a drinking water system has multiple pathogen classes with LRV deficit >1, then consideration is made as to whether the risk rating should be increased to capture the additional risk.
- Risk ratings are based on water received by most customers and not necessarily the absolute worst case. For example, chlorine disinfection performance is based on achieving a defined contact time. If this cannot be achieved or measured prior to the first customer/s, it has been assumed these are an outlier and don't set the risk for the entire community.
- The lack of real time data does not always adversely impact the risk rating, provided that reasonable confidence is in place that the water quality objectives are being achieved. It has been assumed that any such issue (i.e., non-compliant analyser location or type) will be prioritised for resolution.
- Systems having previous dispensation to operate filters outside key performance targets (legacy stretch targets) are now assumed to meet required minimum targets due to the removal of these targets. However, there is currently insufficient data to comprehensively review long term performance.

3. Deficit Removal Plan

TasWater will apply a timeframe to remove or reduce the risk posed from treatment shortfall based on the determined risk rating as outlined in Table 1.

Table 1: Risk rating summary

Risk	Deficit (LRV)	Timeframe to remove or reduce risk (years)	Short Term Mitigation
Extreme	≥4	3	Review short term risk reduction options
High	≥3 & <4	5	Review short term risk reduction options
Medium	≥2 & <3	10	If opportunity exists
Low	<2	Addressed during next major upgrade	Not required

2.1 Extreme (deficit ≥4 LRV)

Water Treatment Plants (WTPs) with LRV deficits of four or more are considered extreme or critical risk. The ADWG Water safety continuum only goes down to 3 LRV deficit and anything below this has an extreme risk associated with it. TasWater will remove or reduce the risk within three years.

2.2 High (deficit ≥3 & <4 LRV)

WTPs with LRV deficits of three should be considered high priority. The risk of a public health disease outbreak is theoretically up to 1,000x greater than zero deficit. TasWater will remove or reduce the risk within five years.

2.3 Medium (deficit ≥2 & <3 LRV)

WTPs with LRV deficits of two are deemed to be a moderate priority as shown in the water safety continuum. The risk of a public health disease outbreak is theoretically up to 100x greater than zero deficit. TasWater will remove or reduce the risk within 10 years.

2.4 Low (deficit <2 LRV)

WTPs with LRV deficits of one or less are deemed to be low priority. If not already scheduled, TW should plan to address these when the WTPs is next upgraded or replaced. Or as in the case with several systems, could potentially have their deficit removed by optimisation of the current treatment barriers.

4. Reporting and Review

A review of WTPs LRV shortfall and risk ratings will occur annually from the date of this agreement. Progress on the delivery of projects to remove deficits and current assumptions to calculate risk will be provided six monthly from July 2024.

5. Appendices:

5.1 Systems and current associated risk ratings

System	Catchment Category	LRV Deficit			Risk Rating *(Nov 2023)*	Assumptions[1] *(STR - Stretch Target Removal; CL - Chlorination; UV - UV installed)*
		Bacteria	Virus	Protozoa		
Bicheno	P3; B3; V2[2]	0	0	1	Low	
Bothwell	4	0	0	2	Medium	
Bracknell	4	0	0	0	None	
Bridport	4	0	0	0	None	
Bronte Park	3	0	0	0	None	
Bruny Island (Adventure Bay)	4	0	2	2	Medium	
Bryn Estyn (Hobart)	4	0	0	0	None	
Bushy Park	2	0	0	3	High	
Campbell Town	4	0	0	2	Medium	
Chimney Saddle (Launceston North Esk)	4	0	0	1.5	Low	CL
Coles Bay	2	0	0	0	None	STR
Conara	4	0	0	0	None	
Cornwall	2	0	0	0	None	
Deep Creek (Smithton)	4	0	0	2	Medium	
Deloraine	4	0	0	0	None	
Distillery Creek (Launceston)	4	0	0	1.5	Low	
Dover	P3; B3; V2	0	0	1	Low	STR; CL
Dowlings Creek (Yolla)	4	0	0	1	Low	STR; CL
Ellendale	4	0	0	2	Medium	
Fentonbury	2	0	0	0	None	
Fingal	4	0	0	0	None	UV
Forth River	4	0	0	2	Medium	CL

The following assumptions have been applied to determine the risk rating. Each assumption will be reviewed annually, and programs are in place to reduce our assumptions. Some assumptions are due to insufficient data and will be resolved with time and others require additional analysers or visibility to make a better assessment.

[1] **STR – Stretch Target Removal** – The assumption that the removal of the stretch target has allowed for claiming of filtration barrier. This however has not been performance assessed.
CL- Chlorine – The assumption that the vast majority of the customers in the system have sufficient chlorination to claim 4 LRV for bacteria and virus. These sites may have analysers missing which would confirm Ct (contact time) or customers close to the WTP who may not always achieve 4 LRV.
UV – Ultraviolet Disinfection – The assumption that recent UV installs (last 12 months) have achieved the designed LRV. This however has not been performance assessed.

[2] Catchment Category 'P3; B3; V2' has been allocated to category 3 catchments which have been identified as having little to no pathogen risk for virus. These catchments have been classed as category 3 for bacteria and protozoa, and category 2 for virus.

Gawler (Ulverstone)	4	0	0	2	Medium	STR
Gladstone	4	0	0	0	None	
Glen Huon (Huonville)	4	0	0	0	None	UV
Grassy	4	0	0	0	None	
Greater Hobart Cat2 Catchments	2	0	0	3	High	CL
Greater Hobart Cat3 Catchments	3	1	1	4	Extreme	CL
Herrick	2	0	0	0	None	
Lady Barron	2	0	0	0	None	
Lake Barrington	3	0	0	1	Low	
Longford	4	0	0	0	None	CL
Mathinna	4	0	0	0	None	
Maydena	2	0	0	0	None	
Mole Creek	2	0	0	0	None	
Mt Leslie (Launceston South Esk)	4	0	0	1.5	Low	
National Park	2	0	0	0	None	
Oatlands	2	0	0	0	None	STR
Orford	3	0	0	1	Low	STR; CL
Ouse	4	0	0	0	None	
Pet River (Burnie)	4	1	1	2.5	Medium	CL
Queenstown	3	0	0	1	Low	
Reatta Road (Launceston West Tamar)	4	0	0	1.5	Low	
Ringarooma	4	0	0	0	None	
Rocky Creek	2	0	0	0	None	
Rosebery	2	0	0	0	None	
Rossarden	2	0	0	0	None	
Scamander	3	0	0	0	None	
Scottsdale	4	0	0	0	None	
St Helens	4	0	0	0	None	
St Marys	4	2	2	5	Extreme	
Strahan	3	0	0	1	Low	
Swansea	4	0	0	2	Medium	
Triabunna	2	0	0	1	Low	STR; CL
Tullah	4	0	0	2	Medium	STR; CL
Tunbridge	4	0	0	0	None	CL
Waratah	3	0	0	1	Low	STR
Wayatinah	3	0	0	0	None	
Westbury	4	0	0	0	None	
Whitehills (Penguin)	4	0	0	2	Medium	STR
Whitemark	2	0	0	0	None	
Zeehan	2	0	0	0	None	STR