Proposed Level 3 Bacteria and virus treatment rules

Where we propose a change to the rule type and reporting and compliance periods, we have made the text red to signify the change.

Existing rule number	Existing requirement	Existing parameter	Proposed Rule Number	Proposed requirement	Proposed parameter	Explanation	Question	Cost implications
4.10 T3 Treatm	nent Rules Module 4.10.1 T3 Bacterial Rules			virus treatment common rules				
T3.1 T3.7 T3.12 T3.15	All water passing through the treatment plant must be treated with chlorine and must be monitored in accordance with Table 19 All water passing through the treatment plant must be treated with chlorine and must be monitored in accordance with Table 19 All water passing through the treatment plant must pass through the ozone contactor and must be monitored in accordance with Table 21. All water passing through the treatment plant must pass through the UV reactor(s) and be within the reactor's certified flow range and must be monitored in accordance with Table 22	Monitoring CP: 1 Day RP: 1 Year Monitoring CP: 1 Day RP: 1 Year Monitoring CP: 1 Day RP: 1 Year Monitoring CP: 1 Day RP: 1 Year	T3.BV.C1	All drinking water supplied must pass through a treatment plant and fully comply with the relevant bacteria and virus monitoring Rules to provide an effective barrier to bacterial and viral contaminants each day.	Assurance CP: 1 day RP: 1 Month	 Consolidates several related rules to make compliance easier has been expanded so that it covers treatment requirements for viruses as well as bacteria changes this rule from a monitoring rule to an assurance rule would increase reporting on this rule from annually to monthly (see G.RR.6). 	N/A	Reduction in annual reporting requirements.
Section 4.10.1 Section 4.10.1 Footnote 42	T3 Bacterial Rules One or more of the following options must be used to demonstrate bacterial compliance: 1. Disinfection with chlorine ⁴² 2. Disinfection with chlorine dioxide 3. Disinfection with ozone 4. Disinfection with UV light For Self-supplied Buildings supplies that provide water to more than a single building chlorine must be used to demonstrate bacterial compliance.	N/A	T3.BV.C2	For Class B, Class B (Interim), Class C and Class D source waters, one or more of the following treatment options must be used to demonstrate bacteria and virus barrier compliance: (a) FAC (b) ozone: (c) UV light.	Assurance CP: 1 Year RP: 1 Year	This proposed rule consolidates information into a specific rule to make compliance easier. We propose removing chlorine dioxide as a treatment option as we are only aware of one supply that currently uses this process. It is our understanding that the supplier is intending to discontinue use of chlorine dioxide. We also propose that chlorination will no longer be required for Self-supplied buildings that provide water to more than one building. This proposed change aligns with recent changes to the Rules for supplies following Level 2 Rules. Self-supplied buildings will still be required to have treatment processes that provide a barrier to microbial contaminants.	Do you agree with removing chlorine dioxide as an option for bacteria and virus treatment? Do you agree with removing the requirement for Self-supplied buildings providing water to more than one building to use chlorine?	Neutral
T3.1 Table 19 T3.1-fac T3.1-pH	T3 Requirements for Drinking Water Disinfected with Chlorine Parameters that need to be continuously monitored and where they need to be monitored: Parameters: FAC Where it needs to be monitored: Water at a point after the prescribed disinfection contact time has elapsed Parameters: pH Where it needs to be monitored: Water at a point after the prescribed disinfection contact time has elapsed	Monitoring CP: 1 Day RP: 1 Year	T3.BV.C3	Drinking water leaving a treatment plant must be continuously monitored for the following: (a) FAC at a point after which chlorine has been well-mixed: (b) pH at a point after which chlorine has been well-mixed: (c) turbidity. Note: This rule does not apply to Self-supplied Buildings.	Non-reporting CP: N/A RP: N/A	 Consolidates information into a rule to make compliance easier expands this rule so that it applies to all supplies, not just supplies using chlorine as a disinfectant to provide a bacterial barrier clarifies that chlorination is a requirement for all Level 3 supplies (except Self-supplied buildings) won't require Class A and Class A (interim) source water to meet contact time (C. t) requirements, as this class of water doesn't need a bacterial or viral barrier. changes this rule from a monitoring rule to a non-reporting rule. Note: all supplies (except Self-supplied Buildings) are currently required to add chlorine to provide a residual disinfection under existing treatment and distribution rules.	N/A	May be significant cost savings for suppliers with Class A sources, depending on the circumstances of the supply, as suppliers will not need to install contact time infrastructure at their treatment plants.
T3.1 T3.3	All water passing through the treatment plant must be treated with chlorine and must be monitored in accordance with Table 19 Treated water must have a FACE of no less than 0.2 mg/L. Turbidity of water leaving the treatment plant must be less than 1.0 NTU for at least 95% of each day.	Monitoring CP: 1 Day RP: 1 Year Monitoring CP: 1 Day RP: 1 Year Monitoring CP: 1 Day RP: 1 Year	T3.BV.C4	Drinking water leaving a treatment plant must meet the following limits: (a) FACE of not less than 0.2 mg/L: (b) pH of between 6.5 and 8 for at least 95% of the time the plant is producing drinking each day: (c) turbidity less than 5 NTU. Note: This rule does not apply to Self-supplied Buildings.	Monitoring CP: 1 Day RP: 1 Month (Combination of multiple rules)	 This proposed rule: consolidates several rules into one rule to make compliance more straightforward clarifies that all Level 3 supplies must add chlorination in each treatment system. There has been no change to FACE, pH or turbidity requirements. 	N/A	N/A

4.10.1.1 T3 Bacterial Rules for Water Disinfected with Chlorine		T3.BV.F Free Available Chlorine Rules										
T3.1	All water passing through the treatment plant must be treated with chlorine and must be monitored in accordance with Table 19	Monitoring CP: 1 Day RP: 1 Year (for all Rule ID components of T3.1)	T3.BV.F1	Drinking water treated by FAC treatment processes must be continuously monitored for the following: (a) turbidity,— (i) after the outlet of the contact tank; or	Assurance CP: 1 Year RP: 1 Year	To make requirements clearer and compliance more straightforward, this proposed rule change consolidates a rule, a table and a footnote into a single rule. We also propose changing this rule from a monitoring rule to an assurance rule.	N/A	N/A				
T3.1 Table 19	T3 Requirements for Drinking Water Disinfected with Chlorine Parameters that need to be continuously monitored and where they need to be monitored:	CP: 1 Day RP: 1 Year (for all Rule ID	CP: 1 Day	•		(ii) before the lime is dosed, where lime is used for post-treatment pH adjustment:(b) FAC, after the outlet of the contact tank:						
T3.1-fac	Parameters: FAC Where it needs to be monitored: Water at a point after the prescribed disinfection contact time has elapsed.		 (c) pH, after the outlet of the contact tank: (d) FACE (calculated): (e) flow, at— (i) the outlet of the contact tank; or (ii) the inlet of the contact tank; or (iii) a calculated outlet flow based on inlet flow and contact level 	tank: (d) FACE (calculated):								
T3.1-ph	Parameters: pH Where it needs to be monitored: Water at a point after the prescribed disinfection contact time has elapsed.											
T3.1-turb	Parameters: Turbidity Where it needs to be monitored: Water at a point after the prescribed disinfection contact time has elapsed.							change if a high-level outlet weir is installed): (f) contact tank level, if used to determine T ₁₀ contact time and C.t value:				
T3.1-flow	Parameters: Flow Where it needs to be monitored: Water leaving the contact tank unless there is a high-level outlet weir in which case water entering the contact tank is acceptable. A calculated outlet flow based on inlet flow and contact level change is also an acceptable approach.		(g) T ₁₀ contact time: (h) C.t value.									
T3.1-leve	Water level in the contact tank (if used).											
T3.1-face	Values that need to be continuously monitored: FACE.											
T3.1-t10	Values that need to be continuously monitored: T10 Contact Time.											
T3.1-c.t	Values that need to be continuously monitored: C.t											
T3.5 Footnote 43	Where lime is used for post-treatment pH adjustment, analysis may be undertaken before the lime is dosed											
T3.2	Treated water must achieve a chlorine C.t value of at least 15 min.mg/L for at least 95 % of each day.	Monitoring CP: 1 Day RP: 1 Month	T3.BV.F2	Drinking water treated with FAC leaving the treatment plant must meet the following requirements: (a) chlorine C.t value must be at least	Monitoring CP: 1 Day RP: 1 Month (Combination of multiple rules)	This proposed rule consolidates several rules into one rule to make compliance more straightforward. We are proposing increasing reporting frequency from annually to monthly for T_{10} contact time and turbidity monitoring requirements. This responds to feedback we have received from some suppliers that reporting more frequently would reduce the burden of annual reporting by spreading analysis and	N/A	Decrease in annual reporting requirements.				
T3.4	T_{10} contact time of at least 5 minutes must be demonstrated.	Monitoring CP: 1 Day RP: 1 Year		15 min.mg/L for at least 95% of the time the plant is producing drinking water each day:								
T3.5	Turbidity of water leaving the treatment plant must be less than 1.0 NTU for at least 95% of each day.43		(b) T ₁₀ contact time must be demonstrated to be of at least 5 minutes:	'	reporting throughout the year.							
Т3.6	Turbidity must not exceed 2.0 NTU for the duration of any consecutive 15-minute period.					 (c) turbidity must be less than 1.0 NTU for at least 95% of the time the plant is producing drinking each day: (d) turbidity must not exceed 2.0 NTU for more than 15 consecutive minutes. 						

4.10.1.2 T3 Bacterial Rules for Water Disinfected with Chlorine Dioxide		Removed						
T3.8	Treated water must achieve a chlorine C.t value of at least 15 min.mg/L for at least 95 % of each day.	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed	N/A	As discussed earlier in this table, we propose removing chlorine dioxide as an option for bacteria/virus treatment as we are not aware of it being used by any suppliers.	N/A	Neutral
T3.9	T_{10} contact time of at least 5 minutes must be demonstrated.	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed	N/A	See above.	N/A	Neutral
T3.10	Turbidity of water leaving the treatment plant must be less than 1.0 NTU for at least 95% of each day. ⁴⁴	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed	N/A	See above.	N/A	Neutral
T3.11	Turbidity must not exceed 2.0 NTU for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed	N/A	See above	N/A	Neutral
T3.7 Table 20	Parameters that need to be continuously monitored and where they need to be monitored: **Parameters:** Chlorine dioxide** **Where it needs to be monitored:** **Water at a point after the prescribed disinfection contact time has elapsed.** **Parameters:** FAC if used in combination with chlorine dioxide** **Where it needs to be monitored:** **Water at a point after the prescribed disinfection contact time has elapsed.** **Parameters:** pH** **Where it needs to be monitored:** **Water at a point after the prescribed disinfection contact time has elapsed.** **Parameters:** Turbidity** **Where it needs to be monitored:** **Water at a point after the prescribed disinfection contact time has elapsed.** **Parameters:** Flow** **Where it needs to be monitored:** **Water leaving the contact tank unless there is a high-level outlet weir in which case water entering the contact tank is acceptable. A calculated outlet flow based on inlet flow and contact level change is also an acceptable approach.** **Water level in the contact tank (if used)* Values that need to be continuously monitored: - FACE if chlorine is used in combination with chlorine dioxide. - Total disinfectant - T10 contact time - C.t	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed	N/A	See above.	N/A	Neutral
T3.10 Footnote 44	Where lime is used for pH adjustment, samples may be taken before the lime is dosed	N/A	N/A	Removed	N/A	See above	N/A	Neutral
4.10.1.3 T3 Ba	cterial Rules for Water Disinfected with Ozon	ne	T3.BV.Z Ozone F	Rules				
T3.12 Table 21	Requirements for Water Disinfected with Ozone	Monitoring CP: 1 Day RP: 1 Year	T3.BV.Z1	Drinking water treated by ozone treatment processes must be continuously monitored for the following:	Assurance CP: 1 Year RP: 1 Year	This proposed rule consolidates a rule, table and footnote into a single rule to make compliance more straightforward. We also propose changing this rule from a monitoring rule to an assurance rule.	N/A	Neutral

T3.12-turb T3.12-flow T3.12-leve T3.12-c.t Table 21 Footnote 45	Parameters that need to be continuously monitored and where they need to be monitored: • Parameters: Ozone Residual • Where it needs to be monitored: Water leaving the contact tank. 45 • Parameters: Turbidity • Where it needs to be monitored: Water at a point immediately before or after the contact tank. • Parameters: Flow • Where it needs to be monitored: Water leaving the contact tank unless there is a high-level outlet weir in which case water entering the contact tank is acceptable. A calculated outlet flow based on inlet flow and contact level change is also an acceptable approach. • Level of water in the contact tank (if used). Values that need to be continuously monitored: • T ₁₀ Contact Time. Values that need to be continuously monitored: • C.t (Ozone x T10 Contact Time). Additional monitoring sites may be used in addition to the contact tank exit point if the water supplier can demonstrate that they improve the accuracy of the monitoring information.			 (a) ozone residual at the outlet of the contact tank (alternative monitoring sites may be used if the water supplier can demonstrate that they improve the accuracy of the monitoring information): (b) turbidity at a point immediately before or after the contact tank: (c) flow at the— (i) outlet of the contact tank, if a high-level outlet weir is installed; (d) temperature of water leaving the contact tank; (e) the water level in the contact tank; (f) T₁₀ Contact Time; and (g) C.t. 				
T3.13	C.t of at least 1.2 mg.min/L for more than 95% of each day must be achieved. Turbidity must not exceed 5.0 NTU for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Month Monitoring CP: 1 Day RP: 1 Year	T3.BV.Z2	 The following requirements must be met for turbidity and ozone: (a) turbidity of water leaving the contact tank must not exceed 5.0 NTU for the duration of any consecutive 15-minute period. (b) an ozone C.t value of at least 1.2 min.mg/L for at least 95% of the time the plant is producing drinking water each day. 	Monitoring CP: 1 Day RP: 1 Month	This proposed rule consolidates two rules into one single rule. We propose increasing reporting frequency from annually to monthly for turbidity monitoring requirements. This responds to feedback we have received from some suppliers that reporting more frequently would reduce the burden of annual reporting by spreading analysis and reporting throughout the year.	N/A	Reduction in annual reporting requirements.
4.10.1.3 T3 Ba	cterial Rules for Water Disinfected with Ultra	aviolet Light		T3.BV.U UV Rules				
Table 22 Table 22 Footnote 48	UV certification/validation: The equipment must be certified and operated to meet the RED dose of 40 mJ/cm2 (or equivalent) using at least one of the: Ultraviolet Disinfection Guidance Manual (USEPA 2006b). DVGW Technical Standard W294 (DVGW 2006) ÖNORM M 5873-1: 2020 01 01. ⁴⁸ NSF/ANSI 55 (NSF, ANSI nd) for Class A systems (for populations of up to 5000) – 3-log. UV reactors installed before 1 January 2020 can be certified to öNORM M5873 (Osterreichisches Normungsinstitut 2001).	Monitoring CP: 1 Day RP: 1 Year	T3.BV.U1	UV units must be validated to (and operated within the specifications of) a designated UV validation standard.	Assurance CP: 1 Year RP: 1 Year	This proposed rule consolidates a rule, footnote and a table into a single rule and proposes having a definition of designated UV validation standard in the interpretations section. We also propose changing this rule from a monitoring rule to an assurance rule.	N/A	Neutral
T3.15 Table 22	T3 Requirements for UV Disinfection Parameters that need to be continuously monitored and where they need to be monitored:	Monitoring CP: 1 Day RP: 1 Year	T3.BV.U2	Drinking water treated by UV light must be continuously monitored for the following:	Assurance CP: 1 Year RP: 1 Year	This proposed rule consolidates a table and a footnote into a rule. We also propose making this rule an assurance rule.	N/A	Neutral

T3.15-uvt T3.15-Turb T3.15-tovi T3.15-flow Table 22 Footnote 47	Parameters: UVT Where it needs to be monitored: Water entering or leaving the UV reactor(s) ¹⁴⁷ Parameters: Turbidity Where it needs to be monitored: Water entering or leaving the UV reactor(s). Can include upstream filter monitoring if there is no other process between the filters and the UV reactors. Parameters: UVI or dose Where it needs to be monitored: The same point in the reactor as that used for certification/validation. Parameters: Flow Where it needs to be monitored: At a point representative of water entering or leaving the reactor(s). Does not apply to UV units certified to NSF/ANSI 55 (NSF, ANSI nd) for Class A systems			 (a) UVT, at a point where water enters or leaves the UV unit(s), except UV units validated to NSF/ANSI 55 - Class A: (b) turbidity, at a point where water enters or leaves the UV unit(s), including upstream filter monitoring if there is no other process between the filters and the UV unit(s): (c) UVI or UV dose, at the same point in the UV unit as that used for certification/validation: (d) flow, at a point representative of water entering or leaving the units, which meets the relevant validation requirements. 				
T3.85	(for populations of up to 5000) – 3-log. All water passing through the treatment plant must pass through the UV reactor(s) and be within the reactor's certified flow range for at least 95% of each day.	Assurance CP: 1 Year RP: 1 Year	T3.BV.U3	Water flow rate must be within the UV unit's certified flow range for at least a minimum RED dose of 40 mJ/cm² (or equivalent) for at least 95% of the time the UV unit is operating each day.	Assurance CP: 1 Year RP: 1 Year	This rule is proposed to align bacterial and virus rules with protozoa rules requirements.	N/A	Neutral
T3.16	A reduction equivalent dose (RED) of not less than 40 mJ/cm ² (or equivalent) must be achieved for not less than 95 % of each day.	Monitoring CP: 1 Day RP: 1 Year	T3.BV.U4	A reduction equivalent dose of not less than 40 mJ/cm ² (or equivalent) must be achieved for not less than 95 % of the time the plant is producing drinking water each day.	Monitoring CP: 1 Day RP: 1 Month	We propose increasing reporting frequency from annually to monthly. This responds to feedback we have received from some suppliers that reporting more frequently would reduce the burden of annual reporting by spreading analysis and reporting throughout the year.	N/A	Reduction in annual reporting requirements.
T3.17	The RED UV dose must be not less than 40 mJ/cm² for any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Year	T3.BV.U5	The reduction equivalent dose delivered by a UV unit must not be less than 40 mJ/cm² (or equivalent) for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Month	This proposed change clarifies that this rule applies to each UV unit in production. This is because if one unit fails, the plant fails for the day. We propose increasing reporting frequency from annually to monthly. This responds to feedback we have received from some suppliers that reporting more frequently would reduce the burden of annual reporting by spreading analysis and reporting throughout the year.	N/A	Reduction in annual reporting requirements.
T3.18	Turbidity must not exceed 5.0 NTU for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Year	T3.BV.U6	Turbidity of water entering the UV unit(s) when it is in service must not exceed 5.0 NTU for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Month	This proposed change clarifies that turbidity of water entering a UV unit needs to be monitored the UV unit when it is in service. We propose increasing reporting frequency from annually to monthly. This responds to feedback we have received from some suppliers that reporting more frequently would reduce the burden of annual reporting by spreading analysis and reporting throughout the year.	N/A	Reduction in annual reporting requirements.
T3.19	For UV units certified to Ultraviolet Disinfection Guidance Manual (USEPA 2006b) monitored UVI, UVT and flow must be used to calculate dose.	Assurance CP: 1 Year RP: 1 Year	T3.BV.U7	UV units validated to USEPA UVDGM must calculate dose using— (a) UVI and flow, if set-point dose approach is used; or (b) UVI, flow, and UVT, if calculated dose approach used.	Non-reporting CP: N/A RP: N/A	 USEPA UVDGM has two approaches to validation, the UV Intensity Setpoint Approach and the Calculated Dose Approach. This proposed rule: sets out requirements for calculating dose for UV units validated to USEPA UVDGM clarifies that UVT only needs to be monitored if a supplier is using a calculated dose approach changes this rule from an assurance rule to a non-reporting. Previously, UVT was monitored separately and needed to meet a set limit. UV units now read UVT and adjust dose accordingly, so monitoring of UVT itself is not required if the appropriate UV dose is being applied. Validation means that the necessary dose will be applied. We plan to develop guidance on UV treatment to help suppliers understand their requirements. 	N/A	N/A
T3.20	For UV units certified to DVGW Technical Standard W294 (DVGW 2006) or ÖNORM M 5873-1: 2020 01 01 ⁴⁶ monitored flow must be used for UVI control or the reactor run at full	Assurance CP: 1 Year RP: 1 Year	T3.BV.U8	UV units validated to DVGW; ÖNORM; or DIN must— (a) use monitored flow for UVI control; or	Non-reporting CP: N/A RP: N/A	 This proposed rule: sets out UVI and UVT requirements for UV units validated to DVGW, ÖNORM; or DIN add the DIN standard as a possible option for suppliers 	N/A	N/A

T3.21	power. UVI and UVT must be more than the validated value for the respective flow. For UV units certified to NSF/ANSI 55 Class A (NSF, ANSI n.d.); (for populations of up to 5000) – 3-log a fault must be generated when any parameter exceeds the certified value.	Assurance CP: 1 Year RP: 1 Year	T3.BV.U9	 (b) be run at full power; and (c) UVI and UVT must be more than the validated value for the respective flow. UV units validated to NSF/ANSI 55 – Class A must generate a fault when any parameter exceeds the validated value. 	Non-reporting rule CP: N/A RP: N/A	 changes this rule from an assurance rule to a non-reporting rule. We propose including a definition of designated UV validated standard in the interpretation section of the Rules. This existing rule has minor wording changes which is intended to align with the new protozoa rule that has been created. We also propose changing this rule from an assurance rule to a non-reporting rule. 	N/A	N/A
Table 22	UVI sensor checking and standardisation: Duty UVI sensors must be checked at least monthly against the reference sensor. If the difference between the two readings exceeds the manufacturer's specified limits, then the Duty UVI sensor must be replaced. The reference UVI sensor must be standardised at least annually in accordance with Ultraviolet Disinfection Guidance Manual (USEPA 2006b) or other traceable procedure. Alternatively, after 12 months the drinking water supplier can use the reference sensor as a duty sensor and purchase a new standardised sensor for use as a reference sensor.	Monitoring CP: 1 Month RP: 1 Year	T3.BV.U10	UVI sensors must meet the following requirements: (a) duty UVI sensors must be— (i) checked at least every month against the reference sensor; and (ii) replaced if the difference between the duty and reference readings exceeds the manufacturer's specified limits: (b) a reference UVI sensor must— (i) have been purchased in the last 12 months; or (ii) be standardised at least annually in accordance with the USEPA UVDGM or other traceable procedure: (c) after 12 months of use, the reference sensor can be used as a duty sensor and a new standardised sensor must be used as a reference sensor.	Assurance CP: 1 Year RP: 1 Year	This proposed rule rewrites a table into a rule to make compliance easier. We also propose changing this rule from a monitoring rule to an assurance rule.	N/A	N/A
T3.20 Footnote 46	Or UV reactors certified to öNORM M5873 (Osterreichisches Normungsinstitut 2001)	N/A	N/A	Removed.	N/A	Consolidated into TB.BV.U1.	N/A	N/A
Table 32 Footnote 56	These requirements do not apply to UV disinfection systems that automatically adjust the UV dose as the UVT of the water flowing through the reactor varies.	N/A	N/A	Removed	N/A	Consolidated into TB.BV.U1.	N/A	N/A