

Proposed changes to Level 3 Protozoa 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
T3 Protozoa Treatment Common Rules				T3.PZ.C Protozoa treatment common rules				
T3.26	All water passing through the treatment plant must pass through the coagulation, flocculation, and filtration process	Assurance CP: 1 Year RP: 1 Year (for all rules)	T3.PZ.C1	All drinking water supplied must— (a) pass through a treatment plant; and (b) If Class C or Class D source water is used, fully comply with the relevant protozoa monitoring rules to provide an effective barrier to protozoal contaminants each day.	Assurance CP: 1 Day RP: 1 Month	This proposed rule: - consolidates multiple rules to create a single common rule for all protozoa treatment processes - would increase reporting on this rule from annually to monthly (see G.RR.6) Groundwater from a depth of >30 metres abstracted via a sanitary borehead does not need protozoa treatment because protozoa have not been found in water from this depth in New Zealand. Shallow groundwater and surface waters (i.e. Class C or Class D source water) are known to be at risk from protozoa contamination so do need a protozoa barrier.	N/A	Reduction in annual reporting requirements.
T3.38	All water passing through the treatment plant must pass through the coagulation, flocculation, sedimentation, and filtration process.							
T3.42	All water passing through the treatment plant must pass through the coagulation, flocculation, sedimentation, and filtration process.							
T3.46	All water passing through the treatment plant must pass through the coagulation, flocculation, sedimentation, and filtration process.							
T3.63	All water passing through the treatment plant must pass through the cartridge filtration process.							
T3.73	All water passing through the treatment plant must pass through the membrane filtration process.							
T3.80	All water passing through the treatment plant must pass through the ozone process.							
T3.85	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.							
T3.22	Drinking water supplies must have a protozoa barrier that provides treatment equal to or exceeding the log level of the water class identified by the Source Water Protozoa Log Credit Treatment Requirements.	Assurance CP: 1 Year RP: 1 Year	T3.PZ.C2	The following minimum levels of protozoa treatment must be met by treatment processes based on the source water class determined rule 8: (a) Class A: 0-log (protozoa treatment not required); (b) Class A (Interim): 0-log (protozoa treatment not required); (c) Class B: 0-log (protozoa treatment not required); (d) Class B (Interim): 0-log (protozoa treatment not required); (e) Class C: 3-log; (f) Class D: 4-log.	Assurance CP: 1 Year RP: 1 Year	This proposed rule aligns with the proposed source water classes (see Proposed changes to Level 3 source water classes). The principle here is that shallow groundwater and surface waters have a risk of protozoa contamination and the default of 4-log protozoa treatment is required to manage that risk. Suppliers that consider their supplies to have a lower risk can undertake an assessment and provide 3-log of protozoa treatment if they can demonstrate the risk is reduced	N/A	Neutral
Section 4.10.2	Treatment processes and log credit allocations The processes that can be used for protozoal treatment, and the log credits that can be achieved are: - Coagulation, flocculation and sedimentation process without filtration [0.5-Log] - Coagulation, flocculation and direct filtration [2.5-3.5-Log] - Coagulation, flocculation, sedimentation, and filtration [3-4-Log] - Second stage filtration [0.5-Log] - Slow sand filtration [2.5-Log] - Membrane filtration [up to 4.0-Log] - Cartridge filtration [2.0-Log] - Ozone [0.25 to 3.0-Log] - Ultraviolet light [up to 4-Log]	N/A	T3.PZ.C3	Class C and Class D source water must be treated to control protozoa to the level determined in rule T3PZ.2C by one or more of the following treatment processes: (a) coagulation and direct filtration (2.5-log): (b) coagulation, flocculation, sedimentation (includes dissolved air floatation), and filtration (3.0-log to 4-log): (c) cartridge filtration (2.0-log): (d) membrane filtration (up to 4.0-log): (e) ozone (0.25 to 3.0-log): (f) ultraviolet light (up to 4.0-log).	Assurance CP: 1 Year RP: 1 Year	This proposed rule: Consolidates explanatory material into a rule. Removes coagulation, flocculation and sedimentation process without filtration as a protozoa treatment option. We are not aware of any suppliers using this process without filtration. Removes the option to achieve 3 log and 3.5 log credits for the current coagulation, flocculation and direct filtration option. We don’t anticipate this change will adversely impact any supplies, as we are not aware of any suppliers who use direct filtration without UV disinfection to achieve the required log credits.	Do you agree with removing the coagulation, flocculation and sedimentation process without filtration process option? Do you agree with removing the current coagulation, flocculation and direct filtration process option for achieving 3 log and 3.5 log credits? Do you agree with removing the reference to flocculation in the current coagulation, flocculation and direct filtration process? Are you using coagulation and direct	We anticipate these proposed changes will not have cost implications for suppliers.

						• Removes the option to use flocculation in the current coagulation, flocculation and direct filtration process, as a direct filtration process does not usually have a flocculation step after the addition of a coagulant. • Removes the second stage filtration option. We are not aware of any suppliers using second stage filtration to achieve log credits. • Removes the slow sand filtration option. We are not aware of any suppliers using slow sand filtration to achieve log credits.	filtration to achieve 3 log or 3.5 log credits? Do you agree with removing the second stage filtration process option? Do you agree with removing the slow sand filtration process option? Will removing these options create any challenges for your organisation?	
Section 4.10.2	The cumulative log credits of a process that includes filtration or sedimentation and a disinfection process can be calculated by adding the log credits of the qualifying processes that are used.	N/A	T3.PZ.C4	Where multiple treatment processes are used to meet log credit requirements, cumulative log credits can be calculated if the processes include— (a) one filtration process recognised under rule T3.PZ.3C (a) to (d); and (b) one disinfection process recognised under rule T3.PZ.3C (e) or (f).	Non-reporting CP: N/A RP: N/A	Currently, suppliers can use multiple treatment processes to meet log credit requirements, as they can add together the log credits of the qualifying processes. This proposed rule: • consolidates explanatory material into a rule • clarifies that only one filtration process and one disinfection process can be added together to meet the required log credits. <i>E.g. UV (up to 4.0 log) may be combined with coagulation and direction filtration (2.5 log) to meet the required log credits.</i>	N/A	N/A
T3.29 Table 24	T3 Requirements for Coagulation, Flocculation and Direct Filtration Process limitations:	Monitoring CP: 1 Day RP: 1 Year	T3.PZ.C5	The following requirements apply to recycled water: (a) untreated waste streams must not be recycled to the head of the plant; (b) water from rapid media filters that is diverted during restart (often referred to as ‘filter to waste’) may be retained and used for filter backwash or recycled with other waste streams; (c) water that is recycled from a treatment process must— (i) be returned to the intake of the plant so that it undergoes the full treatment process; and (ii) undergo effective solids liquid separation of waste streams prior to recycling; and (iii) have turbidity monitored to demonstrate that the recycled water has received effective solids/liquid separation; and (iv) not detrimentally affect treatment processes downstream of the recycling return point; and (v) be subject to flow equalisation so that— a. the mean total recycled water return rate does not exceed 10% of the plant inflow; or b. the volumetric ratio of recycle water to raw water does not exceed 10% prior to the first treatment barrier; and c. the 30-minute rolling average recycle rate does not exceed 10% for 95% of the time; and - the 30-minute rolling average rate does not exceed 15% for more than 15 minutes.	Assurance CP: 1 Year RP: 1 Year	This proposed change: • consolidates multiple rules and tables into a single rule • would make this a common rule that applies to all protozoa treatment processes • clarifies that water diverted as filter to waste can be either recycled or stored and used directly for backwash. This resolves an issue with the existing rules, which indicates that filter to waste water must be discarded when this is not the intention • clarifies that untreated waste streams cannot be recycled to the head of the plant without treatment • gives more flexibility to suppliers who cannot meet existing recycling requirements because of their plant design, by allowing more options for flow equalisation of recycled water flow rate • changes the compliance period for this rule from one day to one year.	Do you agree with the proposed changes for managing recycled water at treatment plants?	There may be possible cost increases for some supplies.
T3.41, T3.45 T3.49 Table 25	T3 Requirements for Coagulation, Flocculation, Sedimentation and Filtration Process limitations:							
T3.79 Table 29	T3 Requirements for Membrane Filtration Process limitations:							
T3.29-recy. T3.41-recy, T3.45-recy T4.49-recy, T3.79-recy (Same text in table)	Water treatment plants that recycle waste streams (excluding water from rapid media filters being diverted during restart after backwash, often called ‘filter to waste’) must return the recycle stream so that it undergoes the full treatment process and provide flow equalisation such that the instantaneous total return rate does not exceed 10% of the plant inflow.							
T3.29-turb T3.41-turb, T3.45-turb T3.49-turb, T3.79-turb (Same text in table)	Turbidity monitoring is required to demonstrate that the recycle water has received effective solids/liquid separation. If instantaneous total return rate flows of greater than 10% of the plant inflow are recycled, separate treatment of the recycled stream is required to inactivate or kill protozoa and bacteria before the waste stream is returned to the plant inlet.							
N/A	N/A	N/A	T3.PZ.C6	The turbidity of filtered water leaving each media filter must be lower than the water entering that filter while it is in service.	Non-reporting CP: N/A RP: N/A	This proposed rule would require suppliers to ensure that filters are working effectively. Water leaving a filter when it is in operation must have lower turbidity than water entering the filter.	Do you agree with the inclusion of this rule about the turbidity of filtered water?	Possible small cost increases for some supplies with filters that are not effective.

						This proposed new rule would apply to all filtration processes.		
Section 4.10.2	If two filtration processes are used, the second filtration process is considered to be second stage filtration and can add only 0.5-Log to the cumulative log credits.	N/A	N/A	Removed	N/A	Currently, supplies can use two filtration processes to meet the required log credits. We propose removing this rule as we are not aware of any suppliers using second-stage filtration to meet required log credits.	N/A	Neutral
T3 Protozoal Rules for Coagulation, Flocculation and Sedimentation without Filtration [0.5-Log]			Removed					
T3.23	All water passing through the treatment plant must pass through the coagulation, flocculation and sedimentation process.	Assurance CP: 1 Year RP: 1 Year	N/A	Removed	N/A	We propose removing the rules set for the coagulation, flocculation and sedimentation process without filtration option, as we are not aware of any suppliers using this process without filtration.	N/A	Neutral
T3.24	The sedimentation process must achieve at least a 70% reduction in raw water turbidity each day, based on the arithmetic mean of the turbidity of the raw water and the water leaving the sedimentation process.	Monitoring CP: 1 Day RP: 1 Month	N/A	Removed	N/A	Removed	N/A	Neutral
T3.25 Table 23	T3 Requirements for Coagulation, Flocculation and Sedimentation without Filtration Parameters that need to be continuously monitored and where they need to be monitored:	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed	N/A	Removed.	N/A	Neutral
T3.25-turb	<i>Parameter:</i> Turbidity. <i>Where it needs to be monitored:</i> On the inlet and outlet of sedimentation process.							
T3.25-lmts	Process Limitations: Sedimentation includes dissolved air flotation. Water from any treatment processes must not be added to the raw water and recycled through the plant.							
T3 Protozoal Rules for Coagulation, Flocculation and Direct Filtration [2.5-Log]			T3.PZ.D Coagulation and direct filtration rules (2.5-Log)					
T3.29 Table 24	T3 Requirements for Coagulation, Flocculation and Direct Filtration Process Limitations:	Assurance CP: 1 year RP: 1 year	T3.PZ.D1	Filtration must be of a rapid media design (pressure or gravity).	Non-reporting CP: N/A RP: N/A	We propose removing the option to use flocculation in the current coagulation, flocculation and direct filtration process, as a direct filtration process does not usually have a flocculation step after the addition of a coagulant. This proposed rule consolidates a table into a rule to make compliance more straightforward.	N/A	Neutral
T3.29-lmts	Filtration is of a rapid media design (pressure or gravity equivalent).							
T3.29 Table 24	T3 Requirements for Coagulation, Flocculation and Direct Filtration Parameters that need to be continuously monitored and where they need to be monitored:	Monitoring CP: 1 Day RP: 1 Year	T3.PZ.D2	The turbidity of filtered water must be continuously monitored on the outlet of each filter while it is in service.	Assurance CP: 1 Year RP: 1 Year	This proposed rule consolidates a rule and a table into a single rule. It also removes the requirement to monitor the service state of each filter.	N/A	Neutral
T3.29-turb	<i>Parameter:</i> Turbidity <i>Where it needs to be monitored:</i> On the outlet of each filter. Monitored when the filter is in service to supply, on any recycle streams to the plant inlet (if present).							
T3.29-sers	<i>Parameter:</i> Service State. <i>Where it needs to be monitored:</i> Each filter.							
T3.27	Turbidity must not exceed 0.3 NTU for more than 5% of each day.	Monitoring CP: 1 Day RP: 1 Month (both Rules)	T3.PZ.D3	The turbidity of filtered water leaving any filter must not exceed the following limits: (a) 0.3 NTU for more than 5% of the time the filter is in operation each day: (b) 0.5 NTU for the duration of any consecutive 15-minute period in each day.	Monitoring CP: 1 Day RP: 1 Month	This rule consolidates two rules into a single rule.	N/A	N/A
T3.28	Turbidity must not exceed 0.5 NTU for the duration of any consecutive 15-minute period.							
T3.29	All of the requirements in Table 24 must be met.	Assurance CP: 1 Year	N/A	Removed	N/A	We propose removing this rule as all the requirements in table 24 have either	N/A	N/A

		RP: 1 Year				been included in specific rules or moved into the interpretations section.		
T3 Protozoal Rules for Coagulation, Flocculation, and Direct Filtration [3.0-Log]			Removed					
T3.30	All water passing through the treatment plant must pass through the coagulation, flocculation, and filtration process.	Assurance CP: 1 Year RP: 1 Year	N/A	Removed	N/A	We propose removing the rule set for achieving 3.0 log credits with coagulation, flocculation and direct filtration. It will no longer be an option to achieve 3 or 3.5 log for the proposed coagulation and direction filtration option.	N/A	Neutral (see T3.PZ.C3)
T3.31	Turbidity must not exceed 0.15 NTU for more than 5% of each day.	Monitoring CP: 1 Day RP: 1 Month	N/A	Removed	N/A	Removed.	N/A	Neutral
T3.32	Turbidity must not exceed 0.5 NTU for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Month	N/A	Removed	N/A	Removed.	N/A	Neutral
T3.33	All of the requirements in Table 24 must be met.	Assurance CP: 1 Year	N/A	Removed.	N/A	Removed.	N/A	Neutral
Table 24	As above	RP: 1 Year						
T3 Protozoal Rules for Coagulation, Flocculation, and Direct Filtration [3.5-Log]			Removed					
T3.34	All water passing through the treatment plant must pass through the coagulation, flocculation and filtration process.	Assurance CP: 1 Year RP: 1 Year	N/A	Removed.	N/A	We propose removing the rule set for achieving 3.5 log credits with coagulation, flocculation and direct filtration. It will no longer be an option to achieve 3 or 3.5 log for the proposed coagulation and direction filtration option.	N/A	Neutral (see T3.PZ.C3)
T3.35	Turbidity must not exceed 0.1 NTU for more than 5% of each day.	Monitoring CP: 1 Day RP: 1 Month	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.36	Turbidity must not exceed 0.3 NTU for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day RP: Monthly	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.37 Table 24	T3 Requirements for Coagulation, Flocculation and Direct Filtration	Assurance CP: 1 Year RP: 1 Year	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3 Protozoal Rules for Coagulation, Flocculation, Sedimentation, and Filtration [3-Log]			T3.PZ.F Coagulation, flocculation, sedimentation and filtration rules [3-Log]					
T3.41 Table 25	T3 Requirements for Coagulation, Flocculation, Sedimentation and Filtration Process Limitations:	Assurance CP: 1 Year RP: 1 Year	T3.PZ.F1	Filtration must be of a rapid media design (pressure or gravity).	Non-reporting CP: N/A RP: N/A	This proposed rule consolidates a table into a rule. We also propose making this rule a non-reporting rule.	N/A	N/A
T3.41-lmts	Filtration is of a rapid media design (pressure or gravity equivalent).							
T3.41 Table 25	T3 Requirements for Coagulation, Flocculation, Sedimentation and Filtration Parameters that need to be continuously monitored and where they need to be monitored:	Monitoring CP: 1 Day RP: 1 Year	T3.PZ.F2	The turbidity of filtered water must be continuously monitored on the outlet of each filter while it is in service.	Assurance CP: 1 Year RP: 1 Year	This proposed rule: - consolidates a table into a rule - would no longer require suppliers to monitor service state at each filter - decreases the compliance period from one day to one year.	N/A	N/A
T3.41-turb	Parameter: Turbidity Where it needs to be monitored: On the outlet of each filter. Monitored when the filter is in service to supply, on any recycle streams to the plant inlet (if present).							
T3.41-sers	Parameter: Service State. Where it needs to be monitored: Each filter.							
T3.39	Turbidity must not exceed 0.3 NTU for more than 5% of each day.	Monitoring CP: 1 Day RP: 1 Month	T3.PZ.F3	The turbidity of filtered water leaving any filter must not exceed the following limits: (a) 0.3 NTU for more than 5% of the time the filter is in operation each day: (b) 0.5 NTU for the duration of any consecutive 15-minute period in each day.	Monitoring CP: 1 Day RP: 1 Month	This proposed rule consolidates two rules into a single rule.	N/A	N/A
T3.40	Turbidity must not exceed 0.5 NTU for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day						

		RP: 1 Month						
T3 Protozoal Rules for Coagulation, Flocculation, Sedimentation, and Filtration [3.5-Log]			T3.PZ.F Coagulation, flocculation, sedimentation and filtration rules [3.5-Log]					
T3.45 Table 25	T3 Requirements for Coagulation, Flocculation, Sedimentation and Filtration Process Limitations:	Assurance CP: 1 Year RP: 1 year	T3.PZ.F4	Filtration must be of a rapid media design (pressure or gravity).	Non-reporting CP: N/A RP: N/A	This proposed rule consolidates a table into a rule. We also propose making this rule a non-reporting rule.	N/A	N/A
T3.41-lmts	Filtration is of a rapid media design (pressure or gravity equivalent).							
T3.45 Table 25	T3 Requirements for Coagulation, Flocculation, Sedimentation and Filtration Parameters that need to be continuously monitored and where they need to be monitored:	Monitoring CP: 1 Day RP 1 Year	T3.PZ.F5	The turbidity of filtered water must be continuously monitored on the outlet of each filter while it is in service.	Assurance CP: 1 Year RP: 1 Year	This proposed rule consolidates a table into a rule. We also propose making this rule an assurance rule.	N/A	N/A
T3.45-turb	Parameter: Turbidity Where it needs to be monitored: On the outlet of each filter. Monitored when the filter is in service to supply, on any recycle streams to the plant inlet (if present).							
T3.45-sers	Parameter: Service State. Where it needs to be monitored: Each filter.							
T3.43	Turbidity must not exceed 0.15 NTU for more than 5% of each day.	Monitoring CP: 1 Day RP: 1 Month	T3.PZ.F6	The turbidity of filtered water leaving any filter must not exceed the following limits: (a) 0.15 NTU for more than 5% of the time the filter is in operation each day: (b) 0.5 NTU for the duration of any consecutive 15-minute period in each day.	Monitoring CP: 1 Day RP: 1 Month	This proposed rule consolidates two rules into a single rule.	N/A	N/A
T3.44	Turbidity must not exceed 0.5 NTU for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Month						
T3 Protozoal Rules for Coagulation, Flocculation, Sedimentation, and Filtration [4-Log]			Coagulation, flocculation, sedimentation and filtration rules [4-Log]					
T3.49 Table 25	T3 Requirements for Coagulation, Flocculation, Sedimentation and Filtration Process Limitations: Filtration is of a rapid media design (pressure or gravity equivalent).	N/A	T3.PZ.F7	Filtration must be of a rapid media design (pressure or gravity).	Non-reporting CP: N/A RP: N/A	This proposed rule consolidates a table into a rule.	N/A	N/A
T3.49 Table 25	T3 Requirements for Coagulation, Flocculation, Sedimentation and Filtration Parameters that need to be continuously monitored and where they need to be monitored:	Monitoring CP: 1 Day RP: 1 Year	T3.PZ.F8	The turbidity of filtered water must be continuously monitored on the outlet of each filter while it is in service.	Assurance CP: 1 Year RP: 1 Year	This proposed rule consolidates a table into a rule. We also propose making this rule an assurance rule.	N/A	N/A
T3.49-turb	Parameter: Turbidity Where it needs to be monitored: On the outlet of each filter. Monitored when the filter is in service to supply, on any recycle streams to the plant inlet (if present).							
T3.49-sers	Parameter: Service State. Where it needs to be monitored: Each filter.							
T3.47	Turbidity must not exceed 0.1 NTU for more than 5% of each day.	Monitoring CP: 1 Day RP: 1 Month	T3.PZ.F9	The turbidity of filtered water leaving any filter must not exceed the following limits: (a) 0.1 NTU for more than 5% of the time the filter is in operation each day: (b) 0.3 NTU for the duration of any consecutive 15-minute period in each day.	Monitoring CP: 1 Day RP: 1 Month	This proposed rule consolidates two rules into a single rule.	N/A	N/A
T3.48	Turbidity must not exceed 0.3 NTU for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Month						
T3 Protozoal Rules for Second Stage Filtration [0.5-Log]			Removed					
T3.50	All water passing through the treatment plant must pass through the second stage filtration process.	Assurance CP: 1 Year RP: 1 Year	N/A	Removed.	N/A	We propose removing this rule set as we are not aware of any suppliers using second-stage filtration to achieve required log credits.	N/A	Neutral
T3.51	Turbidity must not exceed 0.1 NTU for more than 5% of each day.	Monitoring CP: 1 Day RP: 1 Month	N/A	Removed.	N/A	Removed.	N/A	Neutral

T3.52	Turbidity must not exceed 0.3 NTU for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Month	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.53 Table 26	T3 Requirements for Second Stage Filtration Parameters that need to be continuously monitored and where they need to be monitored:	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.53-turb	<i>Parameters:</i> Turbidity <i>Where it needs to be monitored:</i> On the outlet of each filter, monitored when the filter is in service to supply.	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.53-sers	<i>Parameters:</i> Service State. Each filter.	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.53-lmts	T3 Requirements for Second Stage Filtration <i>Process Limitations:</i> A second filtration stage consists of media or granular activated carbon, other fine grain media in a separate stage after granular media filtration with preceding coagulation.	Assurance CP: 1 Year RP: 1 Year	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3 Protozoal Rules for Slow Sand Filtration [2.5-Log]			Removed					
T3.54	All water passing through the treatment plant must pass through the slow sand filtration process.	Assurance CP: 1 Year RP: 1 Year	N/A	Removed.	N/A	We propose removing the rule set for slow sand filtration as we are not aware of any suppliers using this process to achieve log credits.	N/A	Neutral
T3.55	The filter must not dry out.	Assurance CP: 1 Year RP: 1 Year	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.56	Disinfecting chemicals must not be dosed so that they leave a residual disinfectant upstream of the filter beds.	Assurance CP: 1 Year RP: 1 Year	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.57	Following filter maintenance, when a filter is brought back into operation, water must be discharged to waste until the filtration process has been demonstrated to be effective.	Assurance CP: 1 Year RP: 1 Year	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.58	The filters must be operated at a surface loading rate of less than 0.35 m³/m²/h.	Assurance CP: 1 Year RP: 1 Year	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.59	The temperature of the water entering the filter must not drop below 6°C at any time.	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.60	Turbidity must not exceed 0.5 NTU for more than 5% of each day.	Monitoring CP: 1 Day RP: 1 Month	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.61	Turbidity must not exceed 1.0 NTU for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Month	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.62 Table 27	T3 Requirements for Slow Sand Filtration Parameters that need to be continuously monitored and where they need to be monitored:	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.62-temp	<i>Parameters:</i> Temperature <i>Where it needs to be monitored:</i> Water entering the filtration stage.	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed.	N/A	Removed.	N/A	Neutral

T3.62-turb	<i>Parameters:</i> Turbidity <i>Where it needs to be monitored:</i> On the outlet of each filter, monitored when the filter is in service to supply.	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.62-flow	<i>Parameters:</i> Flow <i>Where it needs to be monitored:</i> On the outlet of each filter	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.62 Table 27	T3 Requirements for Slow Sand Filtration Values that need to be continuously monitored:	Monitoring CP: 1 day RP: 1 year	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.62-surf	Surface loading rate.	Monitoring CP: 1 day RP: 1 year	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.62 Table 27	T3 Requirements for Slow Sand Filtration Process limitations:	Monitoring CP: 1 day RP: 1 year	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3.62-recy	Water treatment plants that recycle waste streams must return the recycle stream so that it undergoes the full treatment process and provide flow equalisation such that the instantaneous total return rate does not exceed 10% of the plant inflow. Turbidity monitoring is required to demonstrate that the recycle water has received effective solids/ liquid separation. If flows of greater than 10% are recycled, separate treatment of the recycled stream is required to inactivate or kill protozoa and bacteria before the waste stream is returned to the plant inlet.	Monitoring CP: 1 day RP: 1 year	N/A	Removed.	N/A	Removed.	N/A	Neutral
T3 Protozoal Rules for Cartridge Filtration [2.0-Log]								
T3.64	Rapid pressure fluctuations on either side of the cartridges must be avoided. Pumps must not be connected directly to the discharge side of a cartridge filter. After filtration, the filtrate must pass to a tank if there is subsequent pumping.	Assurance CP: 1 Year RP: 1 Year	T3.PZ.X1	The following requirements must be met where cartridge filtration is used: (a) pumps must not be connected directly to the discharge side of any cartridge filter: (b) where pumping occurs after filtration, the filtrate must first discharge directly to a tank: (c) differential pressure must be measured across each cartridge filter and must not exceed the cartridge filter manufacturer’s specifications: (d) the flow through any filters, measured on the inlet or outlet of each filtration housing, must be within the manufacturer’s design specifications for the treatment processes at all times: (e) the minimum differential pressure must always exceed the differential pressure established at commissioning with a new cartridge: (f) individual cartridges must be able to be clearly identified in relation to the manufacturer and the part number that relates to the validation/certification.	Assurance CP: 1 Year RP: 1 Year (Combination of multiple rules)	This proposed rule consolidates multiple related rules into a single rule to make compliance easier.	N/A	N/A
T3.68	The equipment is operated within the flow range for which it was certified at all times.	Assurance CP: 1 Year RP: 1 Year						
T3.69	Differential pressure across cartridges must be measured and kept within the manufacturer’s recommendations at all times.	Assurance CP: 1 Year RP: 1 Year						
T3.70	The minimum differential pressure must always exceed the differential pressure established at commissioning with a new cartridge and must be kept within the manufacturer’s recommendations.	Assurance CP: 1 Year RP: 1 Year						
T3.71	Individual cartridges must be able to be clearly identified in relation to the manufacturer and the part number that relates to the validation/certification.	Assurance CP: 1 Year RP: 1 Year						
T3.72 Table 28	T3 Requirements for Cartridge Filtration Parameters that need to be continuously monitored and where they need to be monitored:	Monitoring CP: 1 Day RP: 1 Year						
T3.72-pres	<i>Parameters:</i> Differential Pressure. <i>Where it needs to be monitored:</i> Across each filtration housing.							
T3.72-flow	<i>Parameters:</i> Flow. <i>Where it needs to be monitored:</i> On the inlet or outlet of each filtration housing.							
T3.72-sers	<i>Parameters:</i> Service State. <i>Where it needs to be monitored:</i> Each filtration unit.							
T3.72 Table 28	T3 Requirements for Cartridge Filtration	Monitoring CP: 1 Day	T3.PZ.X2	The turbidity of filtered water from each filter housing must— (a) be continuously monitored on the combined inlet to the process; and	Assurance CP: 1 Year		N/A	N/A

Table 29	Parameters that need to be non-continuously monitored and where they need to be monitored: <i>Parameters:</i> Membrane Integrity. <i>Where it needs to be monitored:</i> Each membrane filtration unit.							
T3.77	Filtrate turbidity must not exceed 1 NTU at any time.	Monitoring CP: 1 Day RP: 1 Month	T3.PZ.M2	Filtered water from each membrane unit must not exceed the following limits: (a) 0.1 NTU for more than 15 consecutive minutes: (b) 1.0 NTU at any time.	Monitoring CP: 1 Day RP: 1 Month	This rule consolidates two rules into a single rule.	N/A	N/A
T3.76	See above	See above						
T3.79 Table 29	T3 Requirements for Membrane Filtration Membrane Validation/Certification:	Assurance CP: 1 Year RP: 1 Year	T3.PZ.M3	Membranes must be certified/validated/verified to comply with <i>NSF/ANSI 61: Drinking Water System Components – Health Effects and NSF/ANSI 419 Public Drinking Water Equipment Performance – Filtration or equivalent</i> .	Assurance CP: 1 Year RP: 1 Year	This rule consolidates a table into a rule.	N/A	N/A
T3.79-cert	Membranes must be certified to comply with <i>NSF/ANSI 61: Drinking Water System Components – Health Effects and NSF/ANSI 419 Public Drinking Water Equipment Performance – Filtration or equivalent</i> .							
T3.79 Table 29	T3 Requirements for Membrane Filtration Membrane Validation/ Certification	Assurance CP: 1 Year RP: 1 Year	T3.PZ.M4	Membranes must be operated— (a) to achieve only the log credits that validation specifies; and (b) according to the operational requirements under which the membranes have been validated; and (c) so that when a direct integrity test is undertaken, a 3 µm hole affects the membrane filtration unit’s response to the test.	Assurance CP: 1 Year RP: 1 Year	This rule consolidates a table into a rule.	N/A	N/A
T3.79-cert	The maximum number of log credits (up to a maximum of 4.0) that a membrane filtration process is eligible to receive for protozoa removal depends on third party certification of the log removal that the filter plant can deliver. The manufacturer’s certificate (or validation) must specify the operational requirements under which the membrane units must be operated to meet the specification and the integrity testing procedure that the water supplier must carry out to demonstrate that the plant is operating at the claimed log credit rating at 3-micron resolution.							
T3.79 Table 29	T3 Requirements for Membrane Filtration Process Limitations: Membrane filtration includes microfiltration and ultrafiltration.	N/A	N/A	Removed	N/A	Removed.	N/A	N/A
Footnote 50	This may be source water turbidity before coagulation when membrane filtration is the only process. It may be the average of turbidity from in-service pre-treatment units.	N/A	N/A	Removed	N/A	We propose removing this rule and instead provide guidance related to turbidity.	N/A	Neutral
T3.79 Table 29	T3 Requirements for Membrane Filtration Parameters that need to be non-continuously monitored and where they need to be monitored: Direct Integrity test requirements: The test is applied in such a manner that a 3 µm hole affects the response from the test. The test can verify the log removal value claimed for the membrane process.	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed	N/A	We propose removing this rule and instead provide guidance related to continuous monitoring.	N/A	Neutral
T3 Protozoal Rules for Ozone Disinfection [0.25 to 3.0-Log]								
T3.84	All of the monitoring requirements in Table 31 must be met.	Monitoring CP: 1 Day RP: 1 Month	T3.PZ.Z1	Drinking water treated by ozone disinfection must be continuously monitored for the following: (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; or (ii) inlet 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: (g) C.t.	Assurance CP: 1 Year RP: 1 Year	This 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
T3.84 Table 31	T3 Requirements for Ozone Disinfection Parameters that need to be continuously monitored and where they need to be monitored:							
T3.84-ozon	Parameters: Ozone residual. Where it needs to be monitored: Water immediately before or after the contact tank.53							
T3.84-temp	Parameters: Temperature. Where it needs to be monitored: Water leaving the contact tank.							
T3.84-turbidity	Parameters: Turbidity. Where it needs to be monitored: Water leaving the contact tank.							

	2. DVGW Technical Standard W294 (DVGW 2006). 3. ÖNORM M 5873-1: 2020 01 01..¹ NSF/ANSI 55 (2019) for Class A systems (for populations of up to 5,000) – 3 log.							
Table 32 Footnote 58	UV reactors installed before 1 January 2020 can be certified to öNORM M5873 (Osterreichisches Normungsinstitut 2001).	N/A						
T3.90	See above	See above	T3.PZ.U2	Drinking water treated by UV light must be continuously monitored for the following: (a) UVT, at a point where water enters or leaves the UV reactor(s) (b) turbidity, at a point before the 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 certification/validation requirements.	Assurance CP: 1 Year RP: 1 Year	This proposed rule consolidates a table and footnote into a rule. We also propose making this rule an assurance rule.	N/A	N/A
T3.91 Table 32	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						
T3.91-uvt	Parameters: UVT. Where it needs to be monitored: Water entering or leaving the UV reactor(s). ⁵⁶							
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.							
T3.91-turb	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							
T3.91-uvi	Parameters: UVI or UV dose. For UV units certified to Ultraviolet Disinfection Guidance Manual (USEPA 2006b) monitored UVI, UVT and flow must be used to calculate dose. For UV units certified to DVGW Technical Standard W294 (DVGW 2006) or ÖNORM M 5873-1: 2020 01 01 ⁵⁷ monitored flow must be used for UVI control or the reactor run at full 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. Where it needs to be monitored: The same point in the reactor as that used for certification/validation.							
Footnote 57	Or UV reactors certified to öNORM M5873 (Osterreichisches Normungsinstitut 2001).							
T3.91-flow	Parameters: Flow. Where it needs to be monitored: At a point representative of water entering or leaving the reactor(s).							
T3.85	All water passing through the treatment plant must... be within the reactor’s certified flow range for at least 95% of each day.	Assurance CP: 1 Year RP: 1 Year	T3.PZ.U3	Water flow rate must be within the UV units certified flow range for the claimed log credit at least 95% of the time the UV unit is operating each day.	Assurance CP: 1 Year RP: 1 Year	We propose minor wording changes to this rule. There is no change in requirements for suppliers.	N/A	N/A
T3.86	The UV dose must meet or exceed that required to achieve the claimed log credit for at least 95% of each day.	Monitoring CP: 1 Day RP: 1 Year	T3.PZ.U4	A reduction equivalent dose of not less than that the validated dose for the log credits claimed 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	This proposed rule consolidates two rules into a single rule. We also propose changing this rule from an assurance rule to a monitoring rule, as this rule sets out prescribed monitoring requirements.	N/A	Neutral
T3.87	The UV dose must not be less than that required to achieve the claimed log credit for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Year	T3.PZ.U5	The reduction equivalent dose delivered by a UV unit must not be less than the validated dose for the protozoa log credits claimed for the duration of any consecutive 15-minute period.	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	Decrease in annual reporting requirements.
T3.88	Turbidity must not exceed 5.0 NTU for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Year	T3.PZ.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	We propose minor wording changes to ensure that only water which is used for drinking water supply needs to meet turbidity requirements. When water is	N/A	Possible small cost savings for some supplies.

						run to waste, this doesn’t count towards compliance.		
T3.86	The UV dose must meet or exceed that required to achieve the claimed log credit for at least 95% of each day.	Monitoring CP: 1 Day RP: 1 Month	T3.PZ.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	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 rule. Previously, UVT was monitored separately and needed to meet a set limit. UV units now read UVT and adjust dose accordingly, so required 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
T3.89	UVT must meet or exceed 95% of the UVT for which the reactor has been certified for at least 95% of each day. ⁵⁴	Monitoring CP: 1 Day RP: 1 Year						
T3.86 T3.89	See above.	See above.	T3.PZ.U8	UV units validated to DVGW; ÖNORM; or DIN must— (a) use monitored flow for UVI control; or (b) be run at full power; and (c) UVI and UVT must be more than the validated value for the respective flow.	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 - adds the DIN standard as a possible option for suppliers - 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.	N/A	N/A
Footnote 54	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						
New Rule – from T3.21	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.PZ.U9	UV units validated to NSF/ANSI 55 – Class A must generate a fault when any parameter exceeds the validated value.	Non-reporting CP: N/A RP: N/A	This proposed rule is intended to align the protozoa rules with existing requirements for bacteria treatment. We also propose changing this rule from an assurance rule to a non-reporting rule.	N/A	N/A
T3.91 Table 32	T3 Requirements for UV Disinfection UV sensor checking and standardisation:	Monitoring CP: 1 Month RP: 1 Year	T3.PZ.U10	UVI sensors must meet the following requirements: (a) duty UVI sensors must be— - checked at least every month against the reference sensor; and - replaced if the difference between the duty and reference readings exceeds the manufacturer’s specified limits: (b) a reference UVI sensor must— - have been purchased in the last 12 months; or - 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 consolidates a table into a rule.	N/A	N/A
T3.91-sens	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. Reference UVI sensor must be standardised at least annually in accordance with the Ultraviolet Disinfection Guidance Manual (USEPA 2006b) or other traceable procedure. Alternatively, after 12 months the supplier can use the reference sensor as a duty sensor and purchase a new standardised sensor for use as a reference sensor. Other instrumentation must be calibrated in accordance with the instrument manufacturer’s specified procedures and frequency.							