Guidance to determine drinking water supply population

A key aspect of the draft Drinking Water Quality Assurance Rules (the Rules) is the drinking water monitoring requirements get more complex as the supply population size increases. This recognises the increased risks of large supplies.

We're consulting on the Rules which includes different supply categories and associated population sizes. This document provides guidance to help any person who is responding to this consultation on how to calculate the number of consumers served by each category of drinking water supply.

The Rules are based on the following drinking water supply categories and associated population sizes:

1. On-demand Networked Drinking Water Supplies
    a. < 50 consumers (**Very Small Supplies**)
    b. 50 – 500 consumers (**Small Supplies**)
    c. >500 consumers (**Large Supplies**)
    d. Varying Population Size Supplies
2. Trickle Feed Water Supplies
3. Self-supplied Building Drinking Water Supplies[1]
    a. <50 drinking water consumers
    b. >50 drinking water consumers
4. Water Carrier Services (any population size)
5. Planned Event Temporary Drinking Water Supplies (any population size)[2]
6. Community Drinking Water Stations / Water Carrier Supplies (any population size)

	Supply category	Description	Guidance to determine the water supply population
1.a	On-demand Networked Drinking Water Supplies **< 50 consumers (Very Small Supplies)**	Supplies with a stable population base of less than 50 people.	As these suppliers generally know who is supplied at each connection, it should be possible to determine the population by calculating the total number of people ordinarily living at each address supplied.

[1] This does not include domestic self-supply of drinking water.

[2] These are not a 'drinking water supply' for the purpose of s. 9 of the Water Services Act 2021 but are instead governed by a combination of obligations for suppling drinking water at a planned event (s. 33) and the relevant Rules.

	Supply category	Description	Guidance to determine the water supply population
1.b	On-demand Networked Drinking Water Supplies Rural and small community supplies **50 – 500 consumers (Small Supplies)**	Supplies with a stable population base of 50 to 500 people.	If possible, we recommend using a method called 'census mesh block population data'. Mesh blocks are the smallest geographic units used by Stats NZ to collect data for the census. They vary in size from part of a city block to large areas of rural land. There are on-line tools that drinking water suppliers can use to select the mesh blocks served by their supply and estimate the population living there. Mesh block data is not always reliable for estimating rural populations as many residents have their own roof water supplies and may not be connected to the drinking water supply. An alternative method is to multiply the number of household connections associated with the supply by the average number of people per household. The average number of household occupants can be determined from the census data relevant to the supply or to the appropriate mesh block.
1.c	On-demand Networked Drinking Water Supplies Large urban supplies **>500 drinking water consumers (Large Supplies)**	Supplies with a stable population base of more than 500 people.	As these large drinking water supplies typically encompass large numbers of complete mesh blocks, their supply population can be relatively simple to determine using census mesh block data as described above. Additional sense checking may be required. For example, mesh blocks where only a small percentage of the population are served by the supply should be excluded.

	Supply category	Description	Guidance to determine the water supply population
1.d	**Varying Population Size Supplies**	Supplies where for most of the time there is a stable **base population** but at certain times of the year there can be a significant **increase in population**. An example is a small community with holiday homes where the population grows substantially over the holiday season.	The **base population** can be determined using the methods described above. The **increase in population** can be estimated by using the number of connections multiplied by an occupancy rate. To determine the occupancy rate, water suppliers could use measures like bookings at accommodation providers such as holiday parks, camping grounds, hotels or motels, or indirect measures such as additional mobile phone connections or increase in water usage. This method estimates both the stable population count and the total increased supply population. **Total increased supply population** is the sum of **base population** and **increase in population**.
2.	**Trickle Feed Water Supplies**	Water supplies which provide drinking water at an agreed allocation (trickle feed) to a point of supply storage tank on a consumer's property. Typically, these supplies provide domestic or stock water in rural areas with an agreed quantity over a period of 24 hours	n/a

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3.	**Self-supplied building drinking water supplies**	This covers the situation where water is provided to a single building. This category does not include supply solely to a stand-alone domestic dwelling.	Where the self-supply has a normally resident population (e.g. papakainga), the resident population should be used. Where the self-supply is a workplace, the number of employees that work on site (i.e. industrial parks, ports) should be used. Where the water supply is a commercial premise (such as a café), use the maximum number of customers and workers per day. Where the water supply is a commercial premise (such as a hospital or aged care facility where it is both residents and workers), use the maximum number of the combined population of residents and workers per day.
4.	**Water Carrier Services (any population size),**	This covers the situation where water that is supplied from a vehicle with a water tank (e.g. a truck, trailer, or rail wagon), often to a storage tank on a property. Typically, Water Carrier Services provide drinking-water to houses that have their own supply but need the quantity of stored water to be augmented. Water Carrier Services can also augment other water supplies, particularly during droughts and emergencies. They also provide water to temporary planned events.	For water carriers the population estimate is the number of times water is delivered for drinking over the previous 12 months (not the population they supply).

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5	Planned Event Temporary Drinking Water Supplies / Supplies for event-based populations Planned event temporary drinking water supplies are supplies that are established for a specific purpose and for a limited time. They are not emergency supplies which are dealt with differently under the Water Services Act 2021.	This situation covers short term events where people gather and where a drinking water supply is required for the duration of an event which continues for a limited time. This category covers supplies which normally have no normal population or a very low population, but where the demand on the supply increases for a limited amount of time during events when there's an influx of people. Typically, this category includes events like music festivals, farm field days and civil defence or military exercises. This category also includes unplanned events such as hui or tangi held at marae or gatherings at a community hall.	For planned events such as music festivals and farm field days, water supply population can be estimated by calculating the total number of people attending the event from ticketing numbers or other attendance information. If there are multiple events in a year you can calculate the supply population by adding together the total number of people attending all events. For unplanned events, such as community gatherings or tangi, it may not be possible to calculate supply population exactly. In these cases, we suggest estimating the number of events likely to happen per year and the number of people likely to attend each event to estimate the total number of people attending unplanned events over a year. If applicable, add to this estimate the resident population base of that area.

	Supply category	Description	Guidance to determine the water supply population
6.	Community drinking water stations / Water carrier supplies	Community drinking water stations are supplies that provide water from a single site to a community who collect the water in containers. For example, a tap that is not connected to a networked drinking water supply, which the public can use to collect drinking water in containers. Water Carrier Supplies are drinking water supplies owned and operated by water carriers who use them to fill tanker vehicles for carrying water. These supplies use water from a designated source (bore, spring or surface water) but do not provide water via a piped network to properties or buildings.	Population for a community drinking water station can be calculated or estimated in the following ways: 1. Where the number of people accessing the facility is known, use the maximum number of people that access the facility per day. 2. Where the number of people accessing the facility is not known, estimate the population based on the volume supplied (where the population is calculated based on 2 litres per person, per day). Generally, people do not fill bulk containers daily so the average quantity per fill will be higher than the 2 litres per person.

Additional notes:

Public taps or container filling stations that are connected to a network supply are not considered to be community drinking water stations. This could include a tap at a tourist-information centre or camping ground.

Some water supply distribution systems include zones with on-demand connections and zones with trickle feed connections. The category of supply is determined by the zone that is closest to the treatment plant.

Unplanned and emergency drinking water supplies are not covered by this guidance.