



CLIMATE CHANGE: MOVING THE TARGET FOR WASTEWATER OVERFLOWS

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ABSTRACT

Keywords: Climate change, wastewater overflows, containment standard, level of service, sub-annual return period

The frequency of wet-weather overflows of untreated wastewater to the environment is a key performance metric in managing a separated wastewater network. This metric, also known as a network's "containment standard", is typically expressed as average recurrence interval (ARI) of overflows.

A calibrated model can be used to estimate a network's current and future containment standard, based on simulations of extended periods of historic rainfall (normally at least 10-years) to represent a variety of rainfall events, antecedent soil moisture conditions, and long-period climate oscillations.

The impact of climate change on the performance of a wastewater network would ideally be tested with a continuous rainfall time-series that represents future climate. However, developing such a time-series is a complex and expensive undertaking.

Our presentation describes a basic alternative. It retains the use of the historic rainfall record, but simply adjusts the target ARI of overflows to account for climate change. For example, a network targeted to meet a 12-month containment standard in 2050 might need to meet the 16-month containment standard under current conditions (for a given climate scenario in Wellington).

Such an adjustment assumes that the ARI of wastewater overflows due to climate change will increase in 1:1 relationship with the increase in a given rainfall ARI.

Wastewater network target containment standards are typically at a much lower ARI than provided for in commonly available tools (such as HIRDS). Our study therefore assessed sub-annual rainfall ARIs directly from Wellington rain gauge records, and how these are predicted to change for a range of durations, a range of climate scenarios, and a range of target ARIs (3 to 36-months). The resulting tables will assist in estimating the impact of climate change on investment decisions for wastewater networks in the Wellington region.

This study was a partnership between Hydraulic Analysis Ltd, NIWA, and Wellington Water Ltd.



Modelling Group
WATER NEW ZEALAND



Declaration

Topic	Modelling for an uncertain future
<input checked="" type="checkbox"/>	Can attend in person
<input checked="" type="checkbox"/>	Have permission / authority to speak on the topic
<input checked="" type="checkbox"/>	Have a backup speaker if they fall ill or cannot present



Abstract Guidelines

1. Abstract Guidelines

- Abstracts submitted must be between 300 – 500 words, excluding title and authors.
- Abstracts must use the template above
- Font used should be Times New Roman or Arial size 11.

2. Call for Abstracts closes 4pm, Tuesday 31st January 2023 and submitted to [Katrina Guy](#)

3. Abstract Selection

- Wider applicability
- Demonstrated results and conclusions
- Relevance to the current state of the industry
- Content, including innovation
- Clarity and quality

4. Abstract Acceptance

- If accepted into the programme, you will only have to submit a presentation. No paper is required.
- Final presentation will be due by **28th February 2023**

5. Presentation

- Powerpoint 16:9
- Slide Pack will be attached shortly