

AON SPRINKLER CERTIFICATION



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Aon Sprinkler Certification Technical Note

Note Number: 09-03	Issue: 1	Date: 18 Feb 2009
Subject	Degradation of Sprinkler Water Supplies – Signing of Form 12A's	
Notice: Aon Sprinkler Certification Technical Notes provide guidance notes which may be used in certification of sprinkler installations by Aon New Zealand Limited. This note has been reviewed and endorsed by Verifire for installations being certified by them.		

The FPA has formed a group that is reviewing whether changes in water supply characteristics are impacting on possible sprinkler system performance.

This is partially as a result of a publication of an alarmist article in a newspaper in 2007 which implied that the issue was of national importance.

Effectively, previously adequate water supplies may now be inadequate for a number of reasons, which may include:

- Gradual reduction in the town's main pressures due to an increase in water demands.
- Gradual reduction in the town's main pressure due to deterioration in the distribution network. This may be particularly evident in cast iron mains which are subject to tuberculation.
- An unusually sudden reduction in towns main pressures following maintenance work on the network, where isolation valves are inadvertently left shut.
- A planned reduction in water network pressures by Water Supply Authorities for matters of asset or water conservation.
- A deterioration in pump performance.

As most in the industry are aware, sprinkler systems supplied from public supplies are designed with a level of conservatism to deal with daily/ seasonal fluctuations and a gradual deterioration in the towns' main. In the majority of designs, only 80% of the available supply can be used for the design.

It is often stated that half of the 20% margin is to cater for the daily/season fluctuations and the other half for the possible gradual reduction in supply pressures. With this in mind, if the system demand is less than 90% of the available water supply line as measured during the routine sprinkler survey, normally a system is deemed to have an adequate supply. This is not formally documented and can only be used as a rule of thumb. The Standard does not actually specify whether a water supply needs to be derated when accessing a system during the routine survey.

If the system demand falls between the 90% to 100% line of the water supply curve, the water supply could be compliant. **However**, it would not be prudent to

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make a statement to this effect, without evidence that the supply is adequate at all times. Normally, one would expect that a 7 day or 14 day pressure recording is carried out, to document the adequacy of the supply at all times.

As part of the development of NZS4541:2007, the Standards new Zealand Committee discussed the issue of what type of deficiencies would preclude the ability of an IQP to issue a Form 12A for a sprinkler system. If the Compliance Schedule specifies that a system is to be maintained in accordance with this edition of the Standard, then clause 1201.1 gives room to allow minor deficiencies to be rectified without delaying the issuance of a Form 12A. The Standard states that a minor water supply deficiency is one that would not preclude a 12A being signed. However, it states that a major water supply deficiency would preclude a 12A being issued. Whether a deficiency is minor or major is subjective. The FPA Water Supply Group and both Sprinkler System Certifiers interpretation is that if the demand for a towns' main supplied system is within 90-100% of the measured towns' main, that this is a minor deficiency and needs to be investigated. A 12A could be signed, unless the IQP is aware of other information that would dictate otherwise. Based on this interpretation, any water supply that is less than the required demand is a **major deficiency** and a 12a could not be signed.

The key message that readers should take from this note is that careful consideration needs to be taken before signing any Form 12A with an identified water supply deficiency. If the deficiency is significant, a Form 12A must not be signed. If, as a service provider, a contractor has taken over an existing site, and a minor water supply deficiency appears during the first survey under their control, it would be prudent to check that such a deficiency did not occur during the previous survey controlled by the previous service provider. This would potentially protect the service provider from the few unscrupulous building owners who will change IQP's rather than expend money in rectifying a system.

Chris Mak
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