

SECTION 10 N.Z. STANDARD 4441

LESSON:

1. Until such time as NZS 4441 is updated, the British standard should be used when specifying plant outcomes.

General

This standard is a code of practice relating to the design of swimming pools. It was written in 1972 with a minor update in 1985 when NZS 5826, the operational swimming pool standard, was published. While the standard is a guide and carries no legal weight and, because of its age, has shortcomings, it is still the only reference guide for the construction of swimming pools in a New Zealand context.

The types of pools being built in New Zealand in recent times were not a consideration in 1972, so we have serious reservations regarding turnover rates and pool loadings. Wave and leisure pools are common today and some have large water volumes and heavy usage. These have only to conform to a standard that was written prior to their existence.

Filtration rates for sand filtration are stated in NZS 4441 with recommendations for a variety of loading types (light, moderate, heavy or very heavy) but there are no definitions of these loadings. However, DE filtration rates are definitive, with a rate for vacuum DE and a rate for pressure DE. It would seem inconsistent to have the same type of DE filter rate for a busy leisure pool and a quiet lap pool, bearing in mind the vastly different patronage of each.

As mentioned in Section 6, the size of a cryptosporidium oocyst is 5-8 microns. DE filtration systems can filter to 3 microns but the sand filtration systems can only filter to a 15 - 25 micron range and, therefore, are ineffective in removing cryptosporidium oocysts. Hence the need to add a pressure DE filter to existing sand filtration. Regardless of this, a facility opened in the past twelve months has a stand-alone sand filter system.

Another concern is that the standard is only a guide. The pool building must have resource consents in regard to the various building codes but the possible outbreak of cryptosporidium, due to inferior filtration and disinfection, would appear not to be considered. The effect on the health of clients of the cryptosporidium outbreak in New Zealand swimming pools a few years ago, coupled with the bad press generated for the affected pools, raises the question, "Should sand filtration methods, which are allowed for in the standard, still be acceptable without insisting on a DE filtration polishing unit?" In my view, the answer is, "No."

It is disappointing that the Ministry of Health only shows an interest in the health of the swimming community when there are outbreaks like cryptosporidium. They have been silent on measures to prevent further outbreaks regardless of the fact that these outbreaks affected many swimming pool patrons and resulted in temporary pool closures.

It is an interesting fact that a variety of building standards are mandatory in regard to building resource consents but swimming pool standards are a guide only.

Three situations of concern were noted during the review. These should be strongly discouraged in a revamped NZS 4441.

- A facility had the wash-down water from hosing the pool surround flowing into one of its pools. This only placed additional stress on the plant which filters this mess on its cycle back to the pool. While this practice is highly undesirable, it is apparently not illegal.
- A local authority accepted a mechanical services tender for the supply of a filtration plant with turnover rates less than stipulated in the 30 year old NZS 4441.
- One pool has opened using a high pressure sand filter which cannot filter cryptosporidium oocysts well after this organism was known to cause serious health problems.

As a result of this review, a strong recommendation will be made to SPARC to lobby the Standards Association of New Zealand for the urgent updating of NZS 4441. This is particularly important, not only for the reasons mentioned, but also as some architects and engineers are using British swimming pool design standards because of their concerns with NZS 4441.