

The use of MDPE for underground fire services installations – testing requirements – issues and cost implications for installers

AS2419.1 Fire Hydrant Installations Part 1 System design, installation and commissioning – 2021 was adopted in Queensland on 1st May 2023. For our colleagues and clients this means any project where the Building Certifier was engaged on or after 1st May 2023 the 2023 edition of AS2419.1 applies to the design, installation and commissioning of fire hydrant system and fire water supplies.

It has been a long-conflated process with draft edition of AS2419 distributed for comment by Standards Australia in 2013, 2015, 2017 and 2021. Despite the multiple drafts and revisions, the 2005 standard has grown from 92 pages to 286 pages for the 2023 edition.

From our testing and certification practice we know that MDPE [Medium Density Polyethylene] has become a common material for fire services installed underground. In the 2005 standard MDPE was noted under 'plastic pipe and pipe fittings' in the clause 'plastic pipes. Under the 2005 standard plumbing contractors were only required to have the systems commissioned with a 2 hour hydrostatic pressure test. Unless there was a client / consultants specification calling for a '5 hour PE pipe hydrostatic pressure test'. Some testing and certification group exploited their plumbing contractor clients telling them that all installations where MDPE was installed required a '5 hour PE pipe hydrostatic pressure test'. Obviously a 5 hour test is far more time consuming therefore more expensive compared to a standard 2 hour hydrostatic test.

The AS2419.1 - 2023 edition now specifies piping material with MPPE featured. The specific hydraulic testing requirements are not clear or well defined in the standard. In the main body of the standard sections 12.2 and 12.3 states that hydrostatic pressure testing must be performed. However, the standard then directs the reader to Appendix S which is a Normative Appendix therefore forms part of the standard. Although Appendix S has tables which state duration of time hydrostatic pressure, the tables are precluded by Appendix S.1 General which states PE pipe testing must be in accordance with AS/NZ2033 Installation of polyethylene pipe systems.

AS/NZ2033 requires a hydrostatic pressure test of a 5 hours duration with an additional 5 hour 'prestress period'. This means your testing and commissioning contractor needs to visit the site twice with the second visit taking 5 hours plus. The 'take-away' from this article is that for projects incorporating MDPE there is a far more onerous and expensive procedure for the hydrostatic pressure testing compared to PVC or DICL systems.

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