



Fault Lines

A summary of technical reports on AS1546.3:2017

Prepared for:
The National On-Site
Providers Association
By Steve Dennis
BMechEng(Hons), CPEng,
APEC, IntPE (Aus),
RPEQ(20663)

TECHNICAL REPORTS SHOW FAULT-LINES IN AS1546:3.2017

This is a summary of a series of four technical reports on AS1546.3:2017 completed for NOPA.

The reports were written by Steve Dennis* and have been peer-reviewed by the following:

- Dr Robert Patterson, Lanfax Labs, reviewed all reports
- Joe Whitehead, Whitehead and Associates, reviewed reports 1,2, and 3
- Professor Ashantha Goonetilleke, QUT, reviewed all reports.

Report 1. considers the design hydraulic treatment capabilities. The central figure set in the standard is a baseline minimum flow of 1,200 Litres/Day for domestic on-site secondary treatment installations.

This figure is technically designed for a household of approximately 5 bedrooms on town water. However, ABS figures show that 92% of Australian households are 4-bedrooms or less, with the average being 3 bedrooms.

As a result, the report finds, this requirement will increase the treatment plant size considerably and, potentially, raise the failure rate of AWT systems across the country. Such factors will add unnecessary costs for consumers.

Report 2. is an examination of the performance requirements for treatment systems. The standard has increased both the influent strengths and suspended solids requirements to a significantly higher rate than the previous standard.

These levels have been based on US figures, where in-sink macerators are widely used. Such levels increase the BODs and TSS levels artificially high. In Australia, in-sink macerators are not approved for on-site domestic wastewater systems.

The report finds that, without in-sink macerators, the increase in influent requirements has no logical justification.

Report 3. researches the standard's limitations on scalability of installed systems. The current standard sets a minimum flow of 1,200 Litres/Day with zero allowance to scale upwards or downwards. As noted above, the daily flow is at a higher than average level for Australian households.

However, the standard does not allow installations to be scaled to fit smaller dwellings. Those doing so will not fit the standard.

This ensures a waste of resources, a requirement to fit systems too big for household use (and which will not physically fit on some house blocks) and an in-built additional cost to the consumer.

Report 4. investigates the compliance of the two testing sites established under the standard. Testing regimes for domestic systems are, under the standard, required to be devoid of trade waste inflows, as this can corrupt findings for domestic systems.

However, unrealistically high influent levels oblige test facility operators to make adjustments, including trade waste additions, which are outside the standard's compliance.

The findings are that

- a) the Jimboomba (Qld) facility has BODs and TSS levels which are suggestive of trade waste being discharged into the facility;
- b) the Arris Hahndorf (SA) facility is also not compliant due to demonstrable trade waste influent and the open use of a maceration process.

Full reports can be found at the following locations:

Report 1. Design Hydraulic Treatment Capabilities ([Link to full report](#))

Report 2. Performance Requirements for Treatment System ([Link to full report](#))

Report 3. Scalability of Advanced Passive Wastewater Systems ([Link to full report](#))

Report 4. Jimboomba/Hahndorf Test Sites and AS1546.3:2017 Compliance ([Link to full report](#))

* Steve Dennis: BMech(Hons), GradDipMgt, NER, NPER, CPEng, APEC, IntPE(Aus) RPEQ(20663). Chief Technical Engineer at Advanced-Enviro Septic. The company is a member of NOPA, for whom Mr. Dennis also acts as a Technical Advisor

* AWTS = Older-style Aerated Wastewater Treatment Systems

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For further info and/or media queries, please contact secretary@nopa.org.au