Article:
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Figure 1. Schematic of the intrusion system. Dimensions are not to scale.

Figure 2. Meniscus location for a transient generated with initial conditions 2 l/s and 20 m. Intrusion occurs between (a) to (b), (c) to (d), and (e) to (f) – 12.7 ml, 9.4 ml and 8.8 ml, respectively.

Figure 3. Examples of pressure transients generated with four combinations of initial conditions, each sub figure showing five repeats. The sub figures show transients generated for initial conditions of: a) 1 l/s and 20 m, b) 2 l/s and 10 m, c) 2 l/s and 30 m and d) 4 l/s and 20 m.

Figure 4. Comparison of the volume of intrusion for different external media for a range of different transient conditions, a) varying initial head, initial flow of 2 l/s, b) varying initial flow, initial head of 20 m. Intrusion volumes measured with an average accuracy of ± 1.3 ml.

Figure 5. Time integral of the square root of driving head versus experimental volumes of intrusion. Volumes of intrusion have an average accuracy of ± 1.3 ml and the time integral of the driving heads have an accuracy of ± 0.40 $m^{0.5}$ s.

Figure 6. Comparison of pressure transient data from water and gravel cases, aligned to the initial drop in pressure. Both transients were generated by valve closure from initial conditions of 4 l/s and 20 m.