SMOKE AND MIRRORS
WHICH CONDITION ASSESSMENT
TECHNIQUES WORK

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ABSTRACT
The assessment of condition of water mains is becoming increasingly important on a
world-wide basis. Several technologies, including remote-field technique, near-field
technique, ultrasonics, linear polarisation resistance soil testing, pressure monitoring
and coating defect surveys have been successfully used on more than 1500km of
steel, cast and ductile iron water and sewer mains in Australia, Hong Kong and
Singapore since 1996. Other techniques have also been trialled within this time
frame. Although every technique has a solid scientific and technical basis, some
cannot be used successfully or meaningfully, due to limitations of the technology.
Invariably, techniques require some assumptions to be made in interpreting the
results, whether it be with sampling size, material type, coating condition, etc. The
validity of these assumptions contributes significantly to the success of the
technique.

The type of techniques discussed include intrusive intelligent pigging, direct wall
thickness measurements, chemical and electrochemical soil testing, and remote
measurement techniques.

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