

CONDITION ASSESSMENT OF LARGE DIAMETER ABOVE GROUND GRP WATER PIPELINE

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ABSTRACT

The water supply for Hong Kong is supplied by a number of pipelines collectively known as the Dongjiang Water Transfer System. Part of the pipeline system consists of 7.4 km of 2100– 2300 mm centrifugally cast GRP pipelines of which 2.1 km are constructed above ground. The pipelines were constructed in 1982/83.

The results of a comprehensive condition survey and assessment are provided including the major condition assessment methodologies adopted, testing procedures and the results of the findings. The investigation identified three main issues concerning the above-ground GRP pipelines:

1. External damage of pipe
2. Displacement of joints – resulting in joint leakage
3. Deterioration of internal barrier layers (cracking and blistering) and external blistering at some joints

It was considered that the highest risk of failures of the above-ground GRP mains in the near future will be related to the extent to any external damage. Internal cracking and blistering is not considered likely to cause catastrophic failures in the short to medium term.

The authors conclude that ongoing joint leakage is most likely to continue to occur but the chance of catastrophic failure is considered low provided further remedial measures and testing of the high risk pipes is carried out. It is estimated that a further 25 – 50 years service life is achievable.

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