



PREDICTION OF PCCP FAILURE BASED ON HYDROPHONE DETECTING

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Abstract: Prestressed Concrete Cylinder Pipe (PCCP) is a widely used water pipe all over the world. A major cause of PCCP failure is the internal wire break, which will emit acoustic signal. In this paper, a hydrophone-based PCCP real-time monitoring and failure-prediction system was proposed. By applying wavelet energy normalization analysis to signal feature extraction and Support Vector Machine (SVM) to signal recognition, a high prediction accuracy of 98.33% was achieved. The result showed that the hydrophone-based PCCP failure prediction system is much more effective and economic in real application compared with electromagnetic method and acoustic fiber optical.

Index terms: Wire break signal, acoustic, PCCP, hydrophone, wavelet analysis, SVM