



Ranhill SAJ, Johor, Malaysia – meeting the challenge for remote leak pinpointing

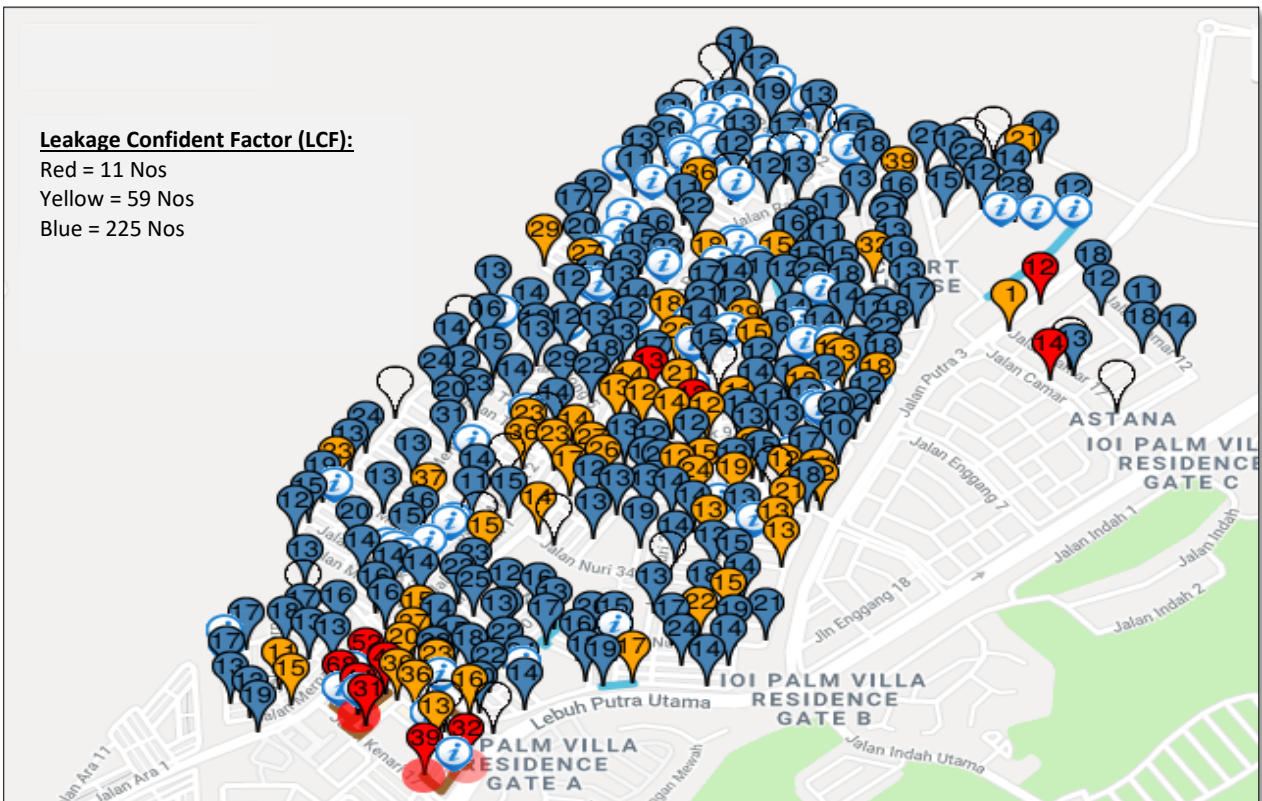
Introduction

Ranhill SAJ Sdn Bhd, a subsidiary of Ranhill Holdings Berhad is an integrated water supply company, involved in the process of water treatment and distribution of treated water to consumers right up to billing and collection. It serves around 3.1 million population and manages 22,175km of pipes over an area of approximately 19,000km.²



The challenge

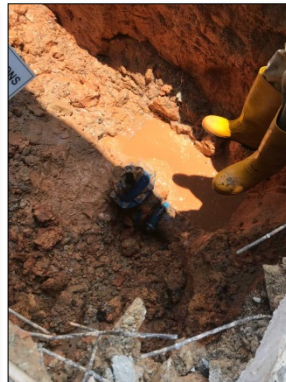
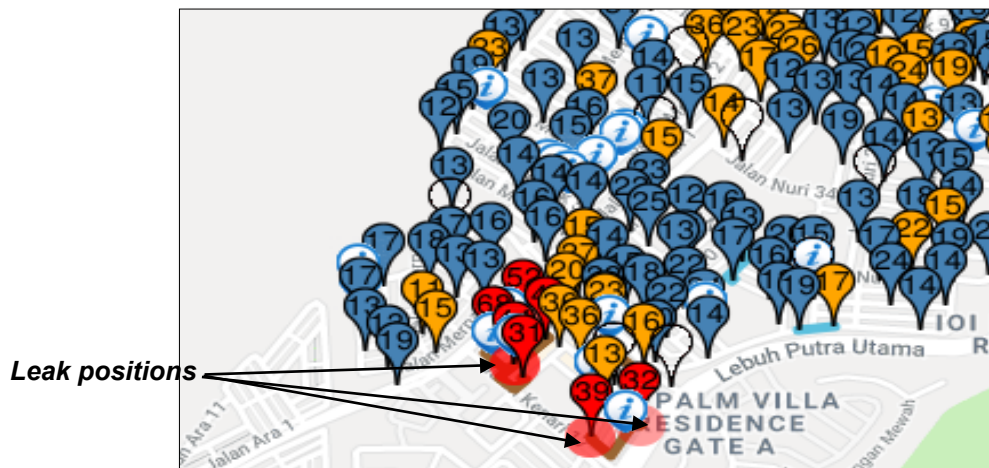
The current NRW of Johor, as at December 2018, is 24%. In achieving NRW of 5% by 2025, several activities have been done. One of the activities implemented to achieve the target is by creating SMART DMA's. In the initial stage five DMA's involved in implementing the SMART DMA program. Enigma3m were deployed at a DMA for at least three months where first month is to find leaks from the correlations obtained, second month to repair leaks and third month will be for monitoring purposes.





Trial at Bandar Putra, Johor Bahru, Johor

Total pipeline length to be covered for the Bandar Putra B, DMA, is 38.51km with 5052 connections. The Net Night Flow (determined by subtracting Legitimate Night Flow from the Minimum Night Flow) before installation of Enigma3m was at 30.99 l/s and total daily flowrate was 6200 m³/day. During the implementation of SMART DMA, a total of 295 units Enigma3m were installed. Pipeline material and distance of Enigma3m varies depending on pipe material from metal pipe to poly pipe. A total of 115 leaks were found and repaired in the second month of Enigma3m installation.



Excavations and leaks

Net Night Flow reduction

Further to the results obtained from Enigma3m installation at Bandar Putra, the test was also successful as small leakages at hydrant valves and communication pipes were also able to be located. Overall, the NNF after 3 months of Enigma3m installation were reduced to 20.08 l/s from 30.99 l/s. This reduction gives a saving of 705 m³/day with a total cost of RM16,920/month (approximately US\$4000/month).



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