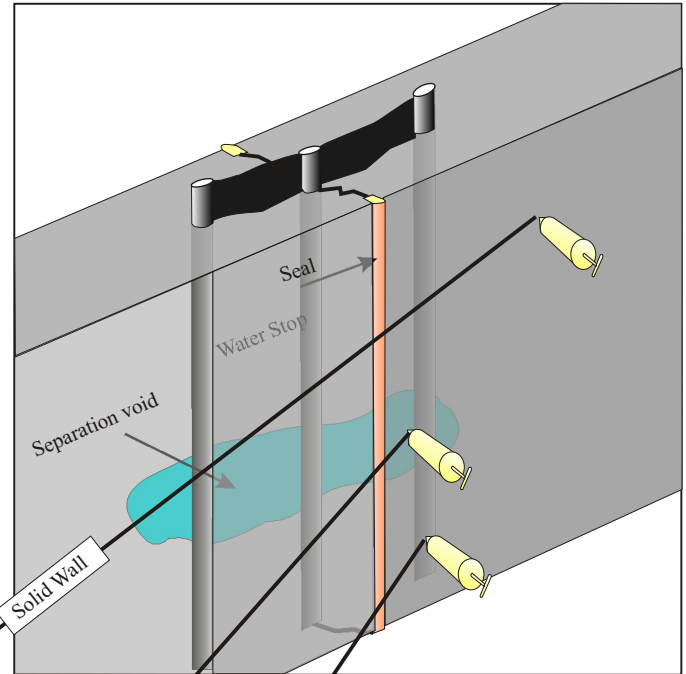


Testing Water Stops Using Impact-Echo Technology

The integrity of metal or plastic water stops can be assessed using impact-echo technology. The tests reveal if the water stop is properly positioned and bonded to the concrete. Conversely, where there is a separation at the water stop, either filled with air or water, the defect and its depth can be detected by the instrument.

When an impact-echo test is made on the surface of a concrete wall, sound waves are generated which travel back and forth between the front and back faces. Where there is a well bonded thin section of material inside the wall, some of the wave energy is reflected at that interface, while some crosses the boundary and travels to the back face. The result is a two peak impact-echo

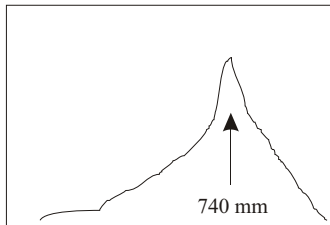


Schematic of wall section at a water stop

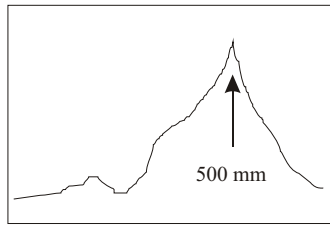
signal, the first peak indicating the depth of the water stop and the second, the back face. Sound travels much slower through the plastic water stop, giving rise to an apparent increase in wall thickness.

Where there is little or no bond between the water stop and concrete, the wave energy cannot pass through to the back face and a single peak is produced at the depth of the water stop.

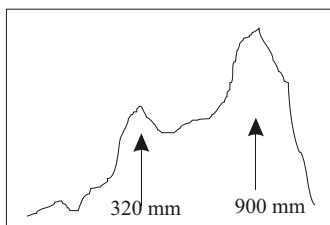
Tests on a leaking reservoir revealed that the majority of construction joints had water stops which were well-bonded to the concrete. It was decided not to inject these joints, saving over \$160,000. Subsequent leakage testing confirmed that these construction joints were satisfactory. (Courtesy W.M. Slater and Associates)



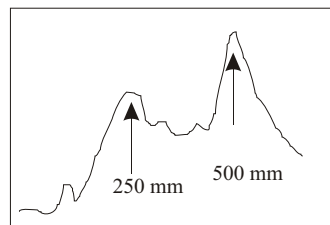
Test through a 750 mm thick wall of a reservoir



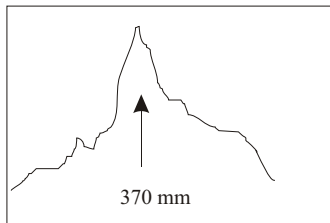
Test through a 500 mm thick wall of reservoir



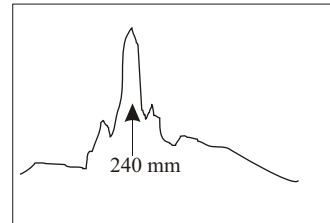
Test at a well bonded plastic water stop showing water stop at 320 mm and an apparent increase in wall thickness



Test at a well bonded steel water stop showing water stop at 250 mm and correct wall thickness of 500 mm



Test at a debonded plastic water stop showing water stop at 370 mm.



Test at debonded steel water stop showing water stop at 240 mm

TTS-11-00

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Company Profile

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