عنوان مقاله:

Field Application of Portable Ultrasonic Flow Meter for Well Flow Depletion Measurement

محل انتشار:

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خلاصه مقاله:

Field observations of flow measurement difficulties using portable ultrasonic flow meters are reported in this work. Accordingly, pipe wall thickness and sensors' spacing were identified as two important sources of the in-situ flow measurement inaccuracies. Experimental tests were accomplished to evaluate the effect of input parameters on the performance of the portable ultrasonic flow meters. Iron and Unplasticized Poly Vinyl Chloride (UPVC) pipes of the outer diameters of ۳, ۴, and ۸ inches were tested. For all tested cases, the pipe wall thickness increase would affect the ultrasonic performance more than the cases with the wall thickness decrease. A mixed effect of the sensors' spacing was observed for the changes in pipe material/dimensions. Finally, a correction equation was proposed to improve the flow measurements.

کلمات کلیدی:

Flow rate measurement, Taguchi Method, Sensitivity analysis, Well depletion, Well discharge reduction.