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In-Situ Inc.

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Flow Rate Application:
Recording Flow Rates Using A Circular Orifice Weir

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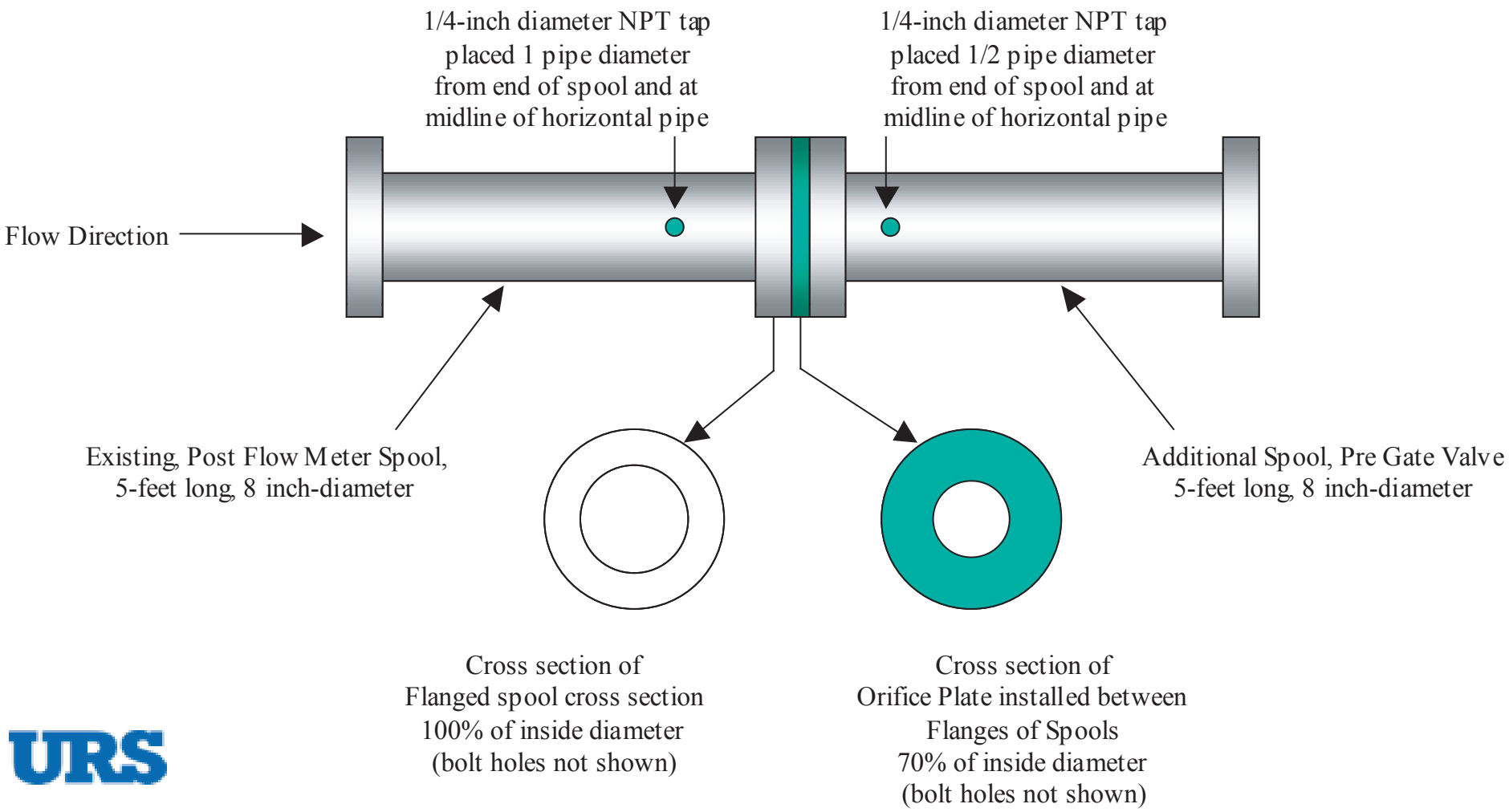
Recording Flow Rates Using A Circular Orifice Weir and Pressure Transducers

Obtaining and recording accurate time-dependant flow rates can be critical when conducting aquifer pump tests. Changes in pumping rate can occur and if not identified can affect interpretation of test data. During unattended pump tests, time-dependant flow through the discharge line can be collected using a circular orifice weir, In-Situ Inc. pressure transducers, and an In-Situ Inc. automated data logger. During testing, a **Hermit 3000** datalogger is set up to record data at convenient intervals for the duration of the test. **The PXD-261** transducers can be threaded into ¼-inch diameter NPT ports on both sides of a restricter plate designed and installed between flanges in the discharge line. Discharge (flow) can be calculated by measuring and recording pressure differentials and knowing the cross sectional area of the pipe and restricter plate. Formulas describing the design and the pressure-flow relationship are available in fluid hydraulics texts. Alternatively, the relationship of pressure to flow can be derived during an attended, short-duration, step drawdown test at metered flow rates. This alternative to the Vortex style flow meters can provide a reliable, accurate, and consistent way of recording flow rate data.

Note: An In-Situ **miniTROLL** can be used in place of the PXD-261 and Hermit datalogger.

Sources:
Information for this *In-Situ Inc. Applications Note* was obtained with permission from Andy Campbell, RG, CHG, Senior Hydrogeologist with URS Corporation, Santa Ana, CA. www.urscorp.com

Orifice Weir for Pump Test Discharge Monitoring



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