

## Capability Statement

# Pumping Test and Pump Selection

Pumping tests for water well projects: assessment of aquifer characteristic and water well capacity

Pumping Test Information and Disclaimer: The flow test completed is not considered accurate unless the contractor uses an actual submersible pump to complete the real pumping test. In most cases, a water well often experiences a notable improvement in flow over the first few weeks of use.

This improvement can and should be sped up by developing the well before it's put into service. After the well is properly developed or after a few weeks of use, a pump test should be completed.

This pump test will be a much more accurate assessment of the flow than the initial flow test completed by the driller

Pumping test is a method of measuring the flow of water which is based on observations of continuity water sources and the availability of water from the source itself. Pumping test involves pumping from a test well at a controlled rate and monitoring the flow rate from the well.

The aquifer parameters that can be determined include transmissivity (T), hydraulic conductivity (K), and storativity (S). Well performance is determined using step drawdown test. Well performance that can be measured are coefficient of aquifer loss and well loss, well efficiency, specific capacity, well development factor, and optimum pumping rate.



### Ultrasonic Flowmeter for Water Well Pumping Test

SUPRA uses the ultrasonic non-invasive flowmeter for pumping test. This involves sending and receiving ultrasonic pulses from a pair of sensors and examining the time difference in the signal. This device uses clamp-on transducers that are mounted externally on the surface of the pipe and which generate pulses that pass through the pipe wall. The flowing liquid within causes time differences in the ultrasonic signals, which are then evaluated by the flowmeter to produce an accurate flow measurement.

### Submersible Pump Selection

For each pump, issues to evaluate include the initial cost, cost of installation, cost of operation, cost of maintenance, and expected equipment life. Proper selection of system components can ensure system performance, but changing conditions sometimes justify altering or reselecting components to maintain economical operation.

The range of expected operating conditions must be checked against the pump manufacturers' information to ensure reliable operation, including the ambient air and water temperature ranges, pressures, flow, corrosive and abrasive factors, power supply variation, duty cycle, and protective devices. The pump must be installed according to the manufacturer's instructions.

