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WATER METER INSTALLATION STANDARDS AND GUIDELINES

Provided below are the water meter installation standards and guidelines associated with the Monterey Peninsula Water Management District (District) Well Registration and Reporting Program.

BACKGROUND Under District regulations, water meters must be installed on all new wells completed after February 23, 1992. District Rule 56 (E) indicates that new wells shall be metered within 90 days of completion, or within 90 days of its first use, or within 90 days of the date the well first becomes operable, whichever date occurs first. Additionally, water meters are required in certain cases for wells that were completed prior to February 23, 1992.

WATER METER STANDARDS The District maintains a list of water meter manufacturers that are satisfactory to the District. A current list is attached. The following standards apply to water meter installations within the District.

- (1) A minimum of eight diameters of straight pipe upstream and downstream of the centerline of the meter (i.e., no bends or valves) must be provided to limit turbulence at the meter. Exceptions can be made if it can be demonstrated that the meter is installed according to the manufacturer's recommendations for straight unobstructed flow lengths upstream and downstream of the meter.
 - (2) The meter installation must be configured to provide a full flow of water in the pipe at the meter under all flow conditions.
 - (3) The meter must be situated such that all water produced from the well is measured.
 - (4) Following installation, the meter must be maintained to an accuracy of plus or minus five percent ($\pm 5\%$) of true flow.
 - (5) The meter must be equipped with a totalizer that is susceptible to correction only by changing mechanical gear equipment.
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WATER METER INSTALLATION GUIDELINES The following guidelines are provided to ensure accurate, economical, and trouble-free meter installations.

- (1) The water meter should be installed in accordance with good design practices and sufficient space should be provided to allow access for inspections and testing as may, from time to time, be deemed necessary.
- (2) The specified flow range of the meter should be consistent with the range of flows provided from the well.
- (3) If solid material (e.g., silt, sand, rust particles, etc.) is present in the discharge from the well, a strainer or filter should be installed in the pipe upstream of the meter to avoid fouling of the meter.
- (4) The well discharge piping, valves, connections, and meter should be water tight. “Wet dial face” meters should be avoided. These meters tend to become unreadable over time, requiring maintenance that could be avoided with the installation of a meter that precludes entry of discharge water into the dial compartment (i.e., a “dry dial face”).
- (5) The meter and discharge line should be protected from freezing, where possible, by installing the meter underground, below the frost line, wrapped in insulation, or otherwise enclosing the meter in an insulated box.
- (6) Appropriate fittings should be used to allow easy installation and maintenance of the meter.
- (7) The water meter should be installed by a qualified, experienced professional.

Upon installation, each water meter must be inspected by District staff. If you have any questions regarding installation of water meters or would like to schedule an inspection, please do not hesitate to call (831) 658-5642.



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WATER METERS SATISFACTORY TO THE DISTRICT

The District requires that all water meters that come from the manufacturers meet or exceed accuracy standards established by the American Water Works Association (AWWA). For propeller-type meters, the AWWA specification requires an accuracy of $\pm 2.0\%$ of rate over a specified range. Following installation, all meters must be maintained to ensure an accuracy of $\pm 5.0\%$. The water meter should also be equipped with a totalizer and should be susceptible to correction only by changing mechanical gear equipment. "Wet dial face" meters should be avoided. These meters tend to become unreadable over time, requiring maintenance that could be prevented with the installation of a meter that precludes the entry of water into the dial compartment (i.e., a "dry dial face").

Manufacturers of water meters that are satisfactory to the District include, but are not limited to:

- McCrometer Water Meters
- Invensys Meters, Inc.
- Sparling Instruments, Inc.
- Badger Meter
- Water Specialties Corporation



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TYPICAL WATER METER COSTS APRIL 1999

PIPE SIZE (Inches)	FLOW RANGE (Gallons per minute)	ESTIMATED COST (Dollars)
5/8 – 3/4	0.25 – 30	48 – 141
1	1 – 50	111 – 177
1 ½	4 – 120	250 – 333
2	35 – 170	375 – 555
3	40 – 250	660 – 1,220
4	50 – 500	830 – 1,399
6	90 – 1,200	1,000 – 1,488

Note: In general, estimates are for flanged propeller type flowmeters.

Sources:

**Roy Alsop Pump & Drilling Company, Inc.; Salinas, CA
Kirkpatrick & Associates; Woodland, CA
Westburne Supply, Inc.; Salinas, CA
Aptos Ten; Aptos, CA
Salinas Pump Company; Salinas, CA**

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