WATER METER INSTALLATION & MAINTENANCE

All water delivered within Westlands, for both agricultural and non-agricultural purposes, is currently accounted for through any one of approximately 3,700 meters. The use of meters to measure water delivery is a cornerstone of any water conservation program. Meters enable water managers to accurately allocate limited supplies and recoup true delivery costs. They also enable the farmer to precisely measure the amount of water delivered and calculate irrigation efficiency. Without a reliable meter-based delivery system, farmers are more likely to apply a safety factor to each irrigation to avoid crop yield reducing underirrigation.

Recognizing these benefits, District founders elected to install flow meters as each lateral was originally constructed. Each of the 3,075 original agricultural deliveries cost $1,400, in 1991 dollars, for a total of $4.3 million. District-wide meter accuracy is within plus or minus two percent as determined from calibration tests.

Westlands' Meter Shop, located at the District's Five Points Shop and Field Office, is among the state's most modern. Meters are calibrated in the shop on a fixed schedule and repaired as needed. Description Meters that fail or are inaccurate are repaired and recalibrated immediately. To ensure accuracy, meters are placed on a four-year preventive maintenance cycle ensuring that each is overhauled and recalibrated at least quadrennially. O&M Reserve funds are used for preventive maintenance during water-short years when funds are short.

In addition to testing approximately 1,000 District meters annually, the District also tests and calibrates an additional 250 meters installed by farmers on well discharges in conjunction with Westlands' Pumped Groundwater Exchange and Groundwater Integration Programs. These conjunctive use Programs maximize the use of the farmers' groundwater wells during drought periods. Operation and maintenance of all wells is the farmers' responsibility.

Under the present program, accurate metering allows both the farmers and the District to carefully manage and account for all water delivered. Other water conservation programs, such as the Water Management Information System (WMIS), must be built on the foundation of a solid water metering program.

METER SELECTION:

Many different manufacturer's water meters are in or have been in service within Westlands:

- McCrometer
- Water Specialties
- Brooks
- Hershey Sparling
- Rate-of-Flow
- Rockwell
- Badger

Links to download a pamphlet from the Kansas State Cooperative Extension that discusses meter selection (http://www. oznet. ksu.edu/library/ageng2/l869.pdf) are provided, as available, on these manufacturers' web sites, in addition to this link. Another source would be the Colorado State Cooperative Extension page on propeller meters

(http://www.ext.colostate.edu/pubs/crops/04710.html).

INSTALLATION & MAINTENANCE:

The vast majority of meters in use are of a propeller type. Brooks meters are a non-propeller type and were installed in the district because they provided head control, but they are being phased out due to the amount of maintenance required with age.

Installation specifications and maintenance requirements are specific to the type and manufacturer of the meter. A manual for McCrometer propeller flowmeters(24517-11 - Propeller Flowmeter (All Models), as well as information for other equipment that they manufacture) is available for download (http://www.mccrometer.com/library/index.htm) on the Internet from the manufacturer's online library. McCrometer suggests that simple observations can tell you when maintenance is required:

- Meters operate very quietly. Any grinding or growling noises that can be detected are the first signs that mechanical failure is near.
- A once steady rate-of-flow indicator that has become erratic is usually indicative of something beginning to fail.
- Fogging seen through the lens would suggest a leak, either from the bearing assembly, or from an external seal.

Accurate measurement requires that the manufacturers specifications be followed. Propeller meters generally require a certain distance of straight pipe ahead and behind a meter for a proper installation. The above mentioned manual for McCrometer presents their specifications.