Water Marketing and Efficiency Grants for American Recovery Reinvestment Act - Request for Grant Proposals (RFP) is Announced

Reclamation’s Water Marketing and Efficiency Grant opportunity is available for consideration by eligible applicants with qualifying projects. Applications must be submitted by May 22, 2009. The RFP may be found at the Internet site http://www.grants.gov/. Search for Funding Opportunity Announcement No. 09SF811499.

A competitive process will be used and the ranking and merit criteria are specific. Please see the full announcement for details. Successful applicants will be announced in July 2009 with Agreements awarded within one to three months of announcement.

Project Categories include: Water Banks and Water Markets; New Technologies for Improved Water Management; Canal Lining; and Measuring Devices. Projects that are considered normal Operations, Maintenance, and Replacement are not eligible.

The maximum federal cost-share rate for this RFP is 50%, and projects must be between $2 million and $10 million total cost ($1 million to $5 million federal cost-share)

Eligible Projects must be completed by September 30, 2011 and those expected for completion by September 30, 2010 will receive a higher ranking during the evaluation process.

At the request of the applicant, Reclamation may provide technical assistance. To discuss assistance available, contact your local Water Conservation Field Services Program Coordinator, Mark Niblack, at (928) 343-8253 or by email at mniblack@usbr.gov.

For questions on this request for proposals, please contact the Yuma Area Grants and Cooperative Agreements Representative, Gerald Casares, at (928) 343-8262 or by email at gcasares@usbr.gov.

Laterally-contracted, long-throated flume for flow measurement located at Ash 43 in the Imperial Valley.

Laterally-Contracted Flumes are Low-Maintenance

If a ditch or canal is designed with enough freeboard along a short length at the heading, then a laterally-contracted flume can be installed to measure flow. A laterally-contracted flume is preferred because it does not cause sedimentation, and so requires very little maintenance. Design and construction for this type of flume only takes a little extra effort, but pays off in long-term benefits of easy maintenance.

If a ditch or canal is not designed to accommodate a laterally contracted flume, then a depth-contracted flume, also called a broad-crested weir or ramp flume, must be used. A ramp flume may cause...
upstream sedimentation, which causes a maintenance problem.

Another advantage of a laterally-contracted flume is that the precision of flow measurement can be greater than the precision with ramp flume.

A broad-crested weir, or depth-contracted, flume for flow measurement located at Alder 38 in the Imperial Valley, with associated sediment maintenance problems. Sediment upstream must be removed periodically.

Venturi Flumes are Field-Tested in the Yuma Area

Long-throated flumes have many advantages and are widely used for accurate flow measurement. They are inexpensive, user-friendly, and require little water elevation, or “head” to operate. Constraints to their adoption in the Yuma Area are the afore-mentioned maintenance problems and lack of head in many situations.

“High-tech” alternatives for low-head conditions, such as acoustic, magnetic, or radar meters are more expensive, slower to respond to flow rate changes, and require comprehensive field calibration in open channels with several separate current-meter measurements.

The Yuma Area Office has been working with Reclamation’s Denver Hydraulics Laboratory to field-test “Venturi” flumes for accurate flow measurement under low-head or submerged conditions. With a Venturi flume we can always have an accurate flow measurement when inadequate head is available, have the maintenance advantages of a laterally-contracted flume, and avoid the expense of “hi-tech” devices.

A Venturi flume measures the dip in water level as water flows thorough a constriction. A small microprocessor on site measures the dip and converts the value to flow rate. Two stilling wells are required – one just upstream of the structure and another in the contracted section.

One of four Venturi flumes installed and tested in the Yuma Area in the Unit B district. Water level is measured upstream and in the contracted section. A microprocessor in the box at right computes the flow rate and telemeters the flow value to the district office.

So far, four Venturi flumes have been installed and tested: the U of A Valley farm, Unit B B-16-88N lateral, and the Yuma County Water Users Association’s Cumming and Potter laterals.

We have found that the use of stilling wells is essential. A single bubbler water level sensor that measures both water levels by directing pressurized air to either well with an automatic valve is used in obtaining accurate water level readings.

Computed Venturi flow rate values were independently monitored with a calibrated, acoustic-Doppler flow meter and verified with current-meter measurements.

For two of the sites, flows were intermittently submerged, allowing us to compare the Venturi measurement with the critical-flow, long-throated flume measurement. We found that both measurements were nearly identical. During submerged conditions, the Venturi measurement matched the acoustic-Doppler and current-meter measurements.

With the Venturi flume, we have another useful tool in our “flow measurement toolbox”.

U.S. Department of the Interior
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