

El Dorado Irrigation District (EID) Standard Water Balance and Audit FY2003

Client: **El Dorado Irrigation District, California**

In order to ensure accountability and benchmark their efficiency as a water utility operator, EID engaged WSO to carry out a water audit using the new AWWA approved technologies. EID is a proactive member of California Urban Water Conservation Council (CUWCC) and they wanted to participate in a review of the new AWWA audit technology from a Californian perspective. This work will then assist CUWCC in their evaluation of the new technology prior to rewriting the regional benchmark parameter (BMP3) around these methods. EID also needed to have a full water audit and annual component based analysis of real losses, and have identified the economic level of leakage, in order to participate as a 'full-scope level-two' study participant in the AWWARF 2928 project.

A top-down water audit was first carried out. This exercise included the collection, verification, collation and review of the utilities available documentation to determine each component of water use and loss. This included:

- Analysis of system input volumes, export volumes & source and export meter testing;
- Identification and confirmation of consumption volumes
- Identification and classification of apparent and real losses
- Calculation of confidence limits for each component of the water balance
- Identification and allocation of appropriate performance indicators
- Calculation of the Economic Level of Leakage (ELL)

The main issues and problem areas identified through the work undertaken by WSO were:

- There was a low level of confidence related to the system input metering. EID is therefore installing new system input meters or relocating system input meters in order to improve the accuracy of the system input metering

- The apparent loss analysis revealed that the larger sized customer meter population is responsible for about 300MG of under registration. EID will, as a result of the study, change its large meter test procedures;

- In terms of Leakage Performance Indicators, the level of physical loss is of the order of 98 US gallons per service connection per day with an average system pressure of 124PSI.

- Using the IWA Infrastructure Leakage Index (ILI) methodology, the ILI for EID is 2.3. The level of physical loss in EID is therefore 2.3 times higher than the best that could be achieved, with well maintained infrastructure in above average condition, and with intensive active leakage control using international "best practice";

- The ELL analysis revealed that EID is close to the economic level of leakage. Further action to reduce leakage is only justified if the real losses are valued at close to the retail cost of water in EID. A reduction in the average leak repair time and a reduction of the average system pressure would then be economically justified.