

Water Loss Reduction Study



Earth Tech was retained by the Town of Peace River for the design of a water treatment plant upgrade and recognized the need for a Master Water Distribution Study to optimize the Town's distribution system through water loss reduction, water system modeling and asset management. The first priority was to complete a Water Loss Reduction Study as the Town had estimated their system losses at 40% of total production, a significant volume.

Earth Tech was retained to design and implement District Metered Areas in the Town's distribution system, prioritize areas for leakage detection and to review the Town's water loss reduction progress against the strategies recommended in the InfraGuide Best Practice "Water Use and Loss in Water Distribution Systems".

Earth Tech also identified a need to review the Town's water balance results which were only at a high level and did not consider meter accuracies, unmetered consumption etc. This review found that many of the customer meters were very old and expected to be under-registering, yet the meter inaccuracy was estimated as negligible. This theory was supported by a low metered residential only consumption of 159 L/capita/day. Further analysis of the meter inaccuracy volume is currently underway and the results will be used to refine estimates for the recoverable and Economic Level of Leakage (ELL).

Earth Tech designed four permanent DMAs for the Town and selected wireless communication using GSM GPRS/EDGE technology. The district meters will be installed in the spring of 2007 and the results of the night flow monitoring will be used to prioritize areas for leak detection.

Best practice water loss reduction strategies will be evaluated for the City based on factors such as the cost to implement, the benefit gained and ease of implementation.

PROJECT DETAILS

CLIENT: Town of Peace River
LOCATION: Alberta, Canada

REFERENCE INFORMATION

NAME Paresh Dhariya, Manager
TEL 780-624-2574

PROBLEM

The Town had estimated their system losses at 40% of total production and had an urgent need to reduce water loss as they are currently designing a water treatment plant upgrade.

CHALLENGES

Initial water balance was conducted only at the high level.

The Town lies on both banks of the Peace River and has an "H" shaped distribution system with multiple pressure zones and dead ends.

The Town required a more cost-effective communication technology than SCADA.

SOLUTIONS

Review of initial water balance and further analysis of meter inaccuracy.

To ensure adequate flows and pressures, the proposed DMAs required both inlet and outlet meters, complicating the night flow analysis.

Selected wireless communication using GSM GPRS/EDGE technology.

BENEFITS

A cross-check of real loss estimates from the water balance approach against results from night flow monitoring.

Prioritization of water loss reduction strategies to target the areas of highest loss.

Prioritization of high leakage areas for leakage detection.