The City of Richmond, British Columbia

Closing the Gate on Leaks while Collecting Consumption Data through the R900® Gateway

In 2003, Neptune Technology Group (Canada) began working with the City of Richmond, British Columbia to meter the water consumption for those single-family dwellings that wished to pay for what they actually used. The popularity of this volunteer program, coupled with mandatory water meters being installed under new housing and capital works, led to a participation rate of more than 70 percent of single-family dwellings by early 2014. Today, over 22,000 single-family residences are metered. The system also includes 300 metered multi-family complexes representing over 14,000 dwelling units and over 3,500 commercial and industrial (ICI) accounts. Richmond is currently implementing a universal single-family water metering program, adding approximately 1,500 single-family metered accounts per year, which will be completed by the end of 2018.

The City currently uses a combination of drive-by, handhelds, and probes to read its meters for billing purposes. Since 2009, Richmond has installed E-CODER®)R900*i*™ combination solid state absolute encoder/radio frequency interface units.

Evolving technology influenced the City of Richmond to provide a higher level of service for consumer leak detection. According to Lloyd Bie, P. Eng., Manager, Engineering Planning, there is a serious lag time between when a leak starts and the customer is notified. Mr. Bie said, "The time it takes to read meters, process and distribute water bills means a leak can potentially go on for 15 weeks before a customer is made aware. If leaks can be identified sooner it will save on water costs, save customer aggravation, and help us provide a higher level of service to our residents."

LAUNCHING A PILOT R900 GATEWAY PROGRAM TO REACH HIGHER GOALS

The City of Richmond launched a fixed network meter reading pilot program with Neptune Technology Group with a goal to daily identify leaks, backflow, and tamper/no flow events. The pilot program tests the R900® Gateway fixed network data collectors by exploring the system's ability to identify leaks in a

CUSTOMER
City of Richmond, British Columbia Water Services

SERVICE TERRITORY
Richmond is located in the Canadian province of British Columbia. Part of the Metro Vancouver area, it has an estimated population of 218,307 people as of 2017.

SOLUTION BENEFITS
Daily leak, backflow, tamper flags for targeted accounts

Historical information helps identify intermittent, continuous leaks

Multiple meter readings a day for pilot accounts

R900 Gateways collect data from existing endpoints with no reprogramming

Pilot "piggybacks" onto existing City infrastructure

Modular approach enables migration at City's own pace

timely manner, testing system performance and integration, determining actual implementation costs to the City, and ensuring the R900 Gateway fixed network can be used for billing.

The R900 Gateways collect information from the same endpoints already in place, without a need to reprogram or change reading modes. In keeping with the Neptune® focus on providing migratable options for water utilities, Neptune Territory Manager Michael Middlemass worked with Richmond's team to "piggyback" the R900 Gateways onto Richmond's existing infrastructure. After determining five sites that would "give the most bang for the buck" with regard to the maximum number of R900 MIUs in range and number of ICI accounts (for a total of 3,000 accounts on the system), Neptune and Richmond installed five R900 Gateways on existing City sewer pump stations.

Installing Gateways on existing infrastructure made deployment extremely simple and cost-effective. And with Neptune's software-defined radio technology employed in the R900 Gateway, the latest enhancements to the R900 System are enabled with a quick over-the-air firmware update. The most recent enhancement allows consumption information on 3,000 accounts to be collected multiple times a day.

Since implementing the pilot Gateways, the City has made progress toward its goals. According to Project Engineer Corrine Doornberg, EIT, it can pull months of historical information, to sub-hourly levels. If a customer calls and they happen to be one of the 3,000 accounts being piloted, "we can check on N_SIGHT® host software to see if the homeowner has a leak and how much it is leaking," she said. "It's a significant advantage," agreed Mr. Bie. "We can identify intermittent or continuous leaks and help the customer."

DOING MORE WITH NEPTUNE FIXED NETWORK TECHNOLOGY

One of the key goals in the pilot program is to integrate meter reading with the City's billing software. Broader implementation of the Neptune R900 System is contingent on this success and Neptune Technology Group is working hard to find a solution. Under the condition that there is billing integration success, Mr. Bie is looking forward to doing more with the City's R900 System in the future. And he's not the only one. "When we were doing rate reviews, senior management showed an interest in getting real-time data on usage, so that we could have a better look at the financial picture going into the next year."

As the universal metering program continues apace, Mr. Bie indicated that eventually moving toward a 100 percent fixed network system would be ideal for a completely metered system. "We'd be able to read all our meters at once, and achieve better estimates of water loss," he said.

The Neptune R900 System has been designed to allow water utilities and municipalities such as the City of Richmond to expand the capabilities of existing assets at their own pace.

"It's a significant advantage. We can identify intermittent or continuous leaks and help the customer." - Lloyd Bie, Manager, Engineering Planning, City of Richmond

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