

RDS led innovation in Water Supply System at PCMC (Pune) Water Supply System Management

Project Brief :

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| Name of the project : for | Providing Installing, Integrating and Automation with PLC / SCADA of existing WTP and ESR at Various locations in PCMC area | City/State | Pimpri Chinchwad, Maharashtra |
| | | Population | 17 Lakhs (app.) |
| | | Area (sq km) | 171 sq.km. |
| Sector | Water Supply | Indicator | Comprehensive Water Quality, Treatment & Distribution Monitoring & Control System |
| Objective | To monitor and control from a single point the water quantity, quality, treatment and distribution process in real time for the entire city. | | |
| Brief description of the project | <p>This project caters to the need for a real time water auditing, monitoring and control system for the entire city of Pimpri Chinchwad spread over 171 sq.kms with a water supply of 428 ML per day.</p> <p>From the point the raw water is pumped to the treatment plant to the final distribution points (85 ESRs) the system provides the city engineers data and control pertaining to the electrical efficiency, flow, pressure, level, valve operation, filter operations on a real time basis at a. raw water pumping station b. water treatment plant c. pure water pumping station and d. Elevated Service Reservoirs (ESR).</p> <p>It uses a spectrum of communication technologies like broadband, WLAN and GPRS to achieve the real time data transmission.</p> <p>The SCADA based reporting system allows the city engineers a graphical insight into the flow, level, pressure & efficiency monitoring along with insights into possible issues on a day to day basis.</p> <p>Use of the historical data, set benchmarks for various supply parameters with the suggested corrective measures allows formulation of corrective strategies to achieve water quality, primary and secondary distribution targets.</p> | | |
| Previous status | <p>The water supply system was operated on judgemental and manual communication basis.</p> <p>Absence of any quantity monitoring method.</p> <p>Such operation often led to miscalculations and non conformance to set targets, lower system efficiency, wastages and higher costs of running the water supply system.</p> <p>It also led to non availability of information regarding the day to day operation of the water supply system</p> | | |
| New approach | The real time monitoring and control system offers the facility to monitor, control, plan corrective actions in case of deviations from the set benchmarks for water quality, efficiency and distribution | | |
| Year/Month | March 2011 | | |
| Implementation strategy (pilot or citywide) | City wide upto the secondary water distribution network | | |

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| Technology used | Field Instrumentation with PLC based control systems for real time monitoring of various process parameters such as Ph, Turbidity, Residual Chlorine, Flow, Level, Pressure etc. city wide using WLAN, Broadband & GPRS communication for data transmission (details regarding technology for each parameter can be submitted if felt appropriate) | Human Resource reqmnt | Largely reduced due to remote monitoring and correction option |
| Management Internally/Outsourced? | Turnkey project carried out by RDS (Recktronic Devices & Systems) | Applicability to other cities | Yes |
| Capital Cost | USD 2.56 mil. | Recurring cost | USD 67000 per year |
| Challenges/Issues | A comprehensive system such as the one implemented needed detailed system planning, product and technology selection prior to execution with clear objectives on the need and utilization of the data Benchmarking the water supply system on the parameters based on the population density in the individual wards Detailing on effects of unaccounted/ unplanned valve operation/s etc. on the water supply system as a whole | Improvements planned | Augmentation of the single point control facility to include the tertiary distribution system, booster pumping stations into the main system. Inclusion of the newly commissioned WTP phase into the implemented system Utilisation of the established system to launch a 24 x 7 system pilot zone Integration of SCADA with hydraulic design for new pipe line laying and new connections Web based water supply monitoring facility for citizens |
| Key benefits | Monitoring of the ESR status with a set point based communication system (messaging) keeps the distribution engineers abreast of the status of water supply in their area. The system forms the backbone of an online | | |

complaint redressal & escalation methodology with its remote monitoring facility.

Calculation of

- a. NRW in each supply mains
- b. Distribution through ESRs and through bypass valves
- c. Efficiency of Pumping Systems (Mechanical & Electrical)
- d. Efficiency of filter beds

Real time Monitoring of process parameters like flow, pressure and level at each ESR, water quality etc. v/s set static and dynamic Benchmarks

The conformance of benchmarks set for various quality and supply parameters allows the city managers an opportunity to intervene proactively in case of shortfalls.