Monitoring RTU Requirements

The monitoring RTU shall be enclosed in a NEMA 1 or NEMA4X enclosure. The RTU shall be powered by 12 volts AC and have a built in battery backup capable of keeping the RTU powered for 40 hours in case of primary AC failure. All terminations inside the RTU enclosure shall be low voltage AC or DC (28 volts or less).

The RTU shall have two (2) analog, 10-bit resolution, 4-20ma or 0-5 vdc inputs, with four (4) alarm thresholds per input. The RTU shall have built in wiring fault, AC failure, communication failure and low battery detection. The RTU shall have eight (8) digital inputs of which up to three (3) shall be capable of recording pump runtimes in one (1) minute resolution with hourly updates of runtimes and starts. The RTU shall have at least three (3) remotely controllable relay outputs. The RTU shall have up to two (2) optional pulse counting totalizers of which one can be programmed to report every 15 minutes.

The RTU shall have:

- Third generation cellular radios for transmitting data,
- Cellular carrier approvals of such cellular radios,
- Security encryption (128 bit) at all stages of data transfer and storage,
- Private IP addresses for all field radio devices,
- Consolidated situation awareness and diagnostic screen graphics for operators,
- Electronic access control keys to track personnel, maintenance and alarm response,
- Automatic pump performance analysis to early detect problems,
- Integrated rainfall monitoring for determining inflow and infiltration,
- Audit/history reports of alarm dispatch events with phone call recordings,
- Alarm filters to reduce nuisance/false alarm callouts,
- Guaranteed service price stability,
- Guaranteed hardware replace costs.

The RTU shall be capable of reporting alarms and all supervisory information to a password protected customer web site, an OPC compliant HMI software package or both. The web site or HMI software package shall be capable of displaying all RTU alarms and supervisory data. This to include alarms, individuals accepting alarms, RTU electronic key/card reads with user names and time of read, pump run times with historical graphs, individual pump flow estimates, automatic daily analysis of pump runtimes for abnormalities with automatic customer notification of such abnormalities, pump starts, hourly analysis of excess pump starts with automatic notifications of excess pump starts, every hour radio health checks with automatic notification of non-reporting or poorly reporting RTU's, scaled and labeled pulse totalizations and if rainfall gauges are used, inter-day rainfall graphs. The customer web site or HMI software package shall be capable of reporting alarms via phone dialup, numeric pager dialup, alpha numeric pager, fax or email or any combination of the above. The customer web site or HMI software shall produce an audit report of every alarm or notification event with accurate results of all notification attempts. The customer web site or HMI software shall produce and deliver weekly reports which summarize alarms and responses, pump runtimes and flow estimates and all electronic key or card uses at the RTU sites.

The field hardware test transmissions shall indicate current and historical radio signal reception quality and shall report any radio signal outages and the duration of the outage.

The field unit shall be capable of optionally providing a method to monitor the wet well float circuit directly while providing auxiliary wet well alarm relay contact closures with out the addition of a separate high wet well float. This optional circuitry shall detect high wet well conditions in the event of pump station AC failures.

Company Requirements

The submitting Company shall provide evidence of, and warrant compliance with, substantially all below listed requirements.

The submitting Company shall have been in business providing remote facility monitoring services to the water distribution / wastewater collection industry or a substantially similar industry for at least two years.

The submitting Company shall have, on staff, engineering and operational personnel with at least five years of experience in designing, manufacturing and operating wide area wireless telemetry systems, microprocessor based monitoring systems and interactive, remotely accessible (Internet or otherwise) database management systems and computer telephony.

The submitting Company shall be the actual manufacturer and operator, or a duly authorized and trained agent of the manufacturing company or a combination of both, who will actually provide, maintain and warranty the proposed system.

The Manufacturing company of the field equipment shall also be the provider of all monitoring related services associated with the field equipment and all ongoing service agreements will be with the actual company providing the monitoring service, not a subcontractor or agent.

The submitting company shall have a primary central monitoring and control center and a fully redundant, physically separate, backup-computer monitoring center. Either center shall have the capability of operating all the remote monitoring and control field RTU's.