SCADA Control and Monitoring Of Groundwater Remediation Facilities: Past, Present And Planning For The Future

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FORMAT:

6-12 page paper plus 30-minute presentation

KEYWORDS

Remediation, Upgrades, Groundwater, Automation, Systems, Process, Treatment, PLC

ABSTRACT

Groundwater remediation is the process of extracting water from the ground for the purpose of treatment and thereafter using it or discharging it back to the ground. This is achieved by primarily three functions: Extraction, Treatment and Discharge (ETD). The methods to achieve these functions vary and can employ various automation aspects. Though the volume of water that is aboveground at the site is smaller compared to other process systems such as wastewater plants, the plant covers a wider area including distant wells. For facilities that would want fuller automation systems, issues of communication between the extraction branch, treatment branch and the discharge branch have to be addressed. Most of extraction basically involves pumping the water out of the ground; treatment is done by systems that are biological, physical, chemical, botanical and/or natural. Discharge may be to a sewer, stream or to a plant for further reuse.

ETD branch communications have been progressing as technology advances at the same time where necessary modifying past technologies. This paper discusses this progression—past, present and future- for example in alarming- in the past the alarms would be connected to physical indicators such as a loud horns go off and light indicators showing the area of alarm. Currently, these systems can be integrated with modern communications devices such that alarms can further be sent to a phone, email and/or web and with the capability of acknowledging alarms remotely based on priority. Future alarm trends will continue to adopt advanced technology and may lead to having alarms relating to plant diagnostics, controller system updates and patches. This progression advances not only the operation of the plant but also maintenance and performance thus reducing downtime and much inefficiency.

About the Authors:

Obadiah Kilonzo, PhD is an Automation Engineer at Carolina Automation Systems where he is in design, instrumentation and commissioning of new systems as well as upgrades. Obadiah received his Doctorate in Mechanical Engineering from North Carolina State University. He has been with Carolina Automation Systems for 2 years, and prior to that was involved in control systems related research activities for over 5 years.

Kevin Fleming is the founder and President of Carolina Automation Systems with over 25 years of experience in Control, Automation and Instrumentation. Kevin has worked with a wide variety of clients such as Water and Wastewater facilities, Pharmaceutical, Food industry, Energy among others providing clients with viable state-of-art solutions.