

Real-Time Event Detection for Monitoring Natural and Source Waterways

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The use of event detection systems in finished drinking water systems is increasing in order to monitor water quality in both operational and security contexts. Recent incidents involving harmful algal blooms and chemical spills into watersheds have increased interest in monitoring source water quality prior to treatment. This work highlights the use of the CANARY event detection software in detecting suspected illicit events in an actively monitored watershed in South Carolina. CANARY is an open source event detection software that was developed by USEPA and Sandia National Laboratories. The software works with any type of sensor, utilizes multiple detection algorithms and approaches, and can incorporate operational information as needed. Monitoring has been underway for several years to detect events related to intentional or unintentional dumping of materials into the monitored watershed. This work evaluates the feasibility of using CANARY to enhance the detection of events in this watershed. This presentation will describe the real-time monitoring approach used in this watershed, the selection of CANARY configuration parameters that optimize detection for this watershed and monitoring application, and the performance of CANARY during the time frame analyzed. Further, this work will highlight how rainfall events impacted analysis, and the innovative application of CANARY taken in order to effectively detect the suspected illicit events.

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