

ABSTRACT

Conceptual Design of a Real Time Water Quality Monitoring System for the Caroni River Basin: With Emphasis on the Caroni Arena Water Treatment Plant

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The Caroni River Basin is a significant source of fresh water in Trinidad, from which potable water is produced by the Water and Sewerage Authority. Research conducted over the past three decades suggests that water quality is declining within the Caroni River Basin.

Adverse water quality incidents in 2003 and 2004 required the Water and Sewerage Authority to suspend the production of potable water from its Caroni Arena Water Treatment Plant. The Regulated Industries Commission on investigating these incidents made recommendations for mitigating any possible future incidents.

Among the recommendations made by the Regulated Industries Commission, was the implementation of an early warning system for the Caroni Arena Water Treatment Plant.

Using data from previous studies conducted on the Caroni River Basin as well as current data collected during this study, water quality data was analyzed to compare past and present conditions of water quality. The analysis was done in the context of the possible impact that land use has on water quality.

The points at which these tests were conducted were georeferenced via global positioning systems (GPS). Telecommunications tests at 400 MHz and 800 MHz were also conducted at each location to determine if communications were possible with the Water and Sewerage Authority's SCADA\Telemetry systems which operate in these frequency bands. From the analysis of the data collected during this study, a conceptual design for the Caroni Water Treatment Plant was developed in keeping with one of the key recommendations of the Regulated Industries Commission.

Keywords: David Michael Drakes; Caroni Arena Water Treatment Plant; Caroni River Basin; Regulated Industries Commission; Water and Sewerage Authority.