

Water Quality Monitoring System Effectiveness: Denver Water Case Study

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Abstract. Water quality monitoring programs are increasingly being held accountable for the information they produce, especially as more information driven management programs are implemented (e.g. source water protection and Section 303(d) list development). Many municipalities along the front range of Colorado are under pressure to expand their raw water monitoring programs as development in the watersheds, supplying municipal water, increases and as the Safe Drinking Water Act regulations tighten. Budgets for monitoring, however, are under financial constraints.

Because of the financial and information constraints being placed on water quality monitoring programs, there is a need to evaluate municipal watershed monitoring programs to insure they are meeting information needs while operating in an efficient manner. The means to evaluate water quality monitoring programs have been evolving over the years, but the practical application of the technology has been limited.

The purpose of this project is to utilize existing water quality monitoring design theory in the evaluation of a large municipal water supplier's ability to produce information effectively. Denver Water has agreed to have its monitoring program evaluated as a means of testing the existing technology for determining the effectiveness of water quality monitoring programs. Denver Water operates an extensive water quality monitoring program that extends over its entire source water area to the terminal reservoirs that feed the treatment plants. This raw water monitoring system evolved over the years as operational needs and various regulatory information requirements were placed on Denver.

As a result of this evaluation process, recommended improvements to Denver Water's monitoring program will be suggested to better meet objectives. This enables Denver Water to utilize the outcome of the evaluation for the creation of an efficient, well documented monitoring program. Products to come of this research for Denver Water include documented information goals, documented data analysis procedures, and a statistically designed monitoring network.