

The Development of a Monitoring Program to Assess Source Water Quality for a Desalination Facility on the Hudson River

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ABSTRACT

In order to keep pace with future water supply demands in Rockland County, United Water New York (UWNY) has identified both short and long-term average day and peak day water supply targets that would have to be addressed through an aggressive capital program. It has been determined that new sources of supply will be needed to bridge the gap of the current peak day supply of 45.5 mgd and the 2015 estimated peak day demand of 52.6 mgd. UWNY believes that this supply shortfall can be addressed through the implementation of a two-tiered approach. The first tier, a near term strategy, will be implemented to develop new supplies and improve and maximize the use of existing sources. The second tier of the strategy involves the development of a long term water supply project that can be carried out in stages to meet the projected demands for the next 20 years. UWNY has determined that of all the currently available long term water supply alternatives, its consumers in Rockland County, New York will best be served by the timely implementation of a Hudson River Desalination Project

As part of its public water supply approval process, the New York State Department of Health requires the submittal of a report which characterizes the water quality of any newly proposed source. During the initial phase of the report preparation process, UWNY determined that in order to develop a better understanding of the nature and variability of Hudson River water quality, it was necessary to supplement the existing long-term data record with new information. As such, a water quality monitoring plan was developed which included the following program elements: selection of water quality analytes, selection of sampling locations, determination of appropriate sampling frequencies, and the selection of pertinent sampling methodologies, i.e., composite, grab, and/or continuous sampling. In addition, quality control and quality assurance procedures were established for all associated field, laboratory and data analysis/reporting activities.

The compilation of existing water quality data in conjunction with the collection of new information helped to address contemporary water quality concerns as well as assist in the ultimate design of an effective water treatment process. This paper will describe the rationale, the design and the implementation of the monitoring plan. In addition, the linkage between the source water quality defined by this monitoring exercise, and the development of a process study program for a desalination pilot plant will also be discussed.

KEYWORDS

Hudson River, United Water, desalination, water quality monitoring plan, remote continuous monitoring, process studies.