

# Introduction

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This symposium was organized to present the need for power plant instrumentation in the measurement of high-purity water quality and to disclose the latest developments in this instrumentation. Present water treatment techniques in high-pressure electric utility plants are complex, and monitoring the water quality assumes a very important role in ensuring continuous and efficient operation of these power plants. Proper and efficient monitoring of water quality is necessary to avoid expensive plant outages (at reported costs of \$1 000 000 per day) that can occur if the plant chemistry is allowed to vary from specified limits, possibly because of inadequate instrumentation.

The papers in this volume disclose the problems involved in monitoring the water quality of high-purity water and provide information on new instrumentation and the refinements that have been developed. The information contained here should be helpful to engineers designing the instrumentation for new plants, for those charged with the responsibility of updating instrumentation for plants that do not have adequate monitoring equipment, and for plant chemists who must continually monitor the water quality to ensure uninterrupted and economical maintenance-free operation.

Since as many as seven or more different general methods of measurement are described here, a full picture of the available instrumentation has been provided. Techniques employing various methods of measurement, such as ion chromatography, atomic absorption spectrometry, specific-ion electrodes, ion-exchange columns, electrical conductivity, a gravimetric method, and differential pulse polarography, are covered in this volume. Discussions on methods of sampling, desired points of sampling, and other details are included. This publication should bring the reader up to date on the present methods available for monitoring the quality of high-purity water for utility power plant usage.

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