

- [54] **AUTOMATIC ON-LINE CHEMISTRY MONITORING SYSTEM**
- [75] Inventors: William A. Byers, Penn Hills Twp., Allegheny County; Gerald L. Carlson, Mt. Lebanon; David F. Pensenstadler, North Huntingdon; Michael J. Wootten, Murrysville; James E. Richards, Monroeville, all of Pa.
- [73] Assignee: Westinghouse Electric Corp., Pittsburgh, Pa.
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Primary Examiner—Parshotam S. Lall
 Assistant Examiner—Joseph L. Dixon

[57] **ABSTRACT**

A system for automatically sampling, monitoring and analyzing power plant steam cycle water supplied from various points in a power plant steam cycle system as a plurality of influent fluid sample streams. A continuous monitor module including continuous on-line monitors and a calibration unit provides continuous on-line monitoring of each influent fluid sample stream, and an ion chromatograph unit provides semi-continuous monitoring of a selected one of the influent fluid sample streams. Each calibration unit is operable to condition the corresponding influent fluid sample stream to provide a conditioned influent fluid sample stream having predetermined chemical characteristics; the continuous on-line monitors are calibrated with respect to the predetermined chemical characteristics of the corresponding conditioned influent fluid sample stream and the ion chromatograph unit is calibrated with respect to the predetermined chemical characteristics of the selected conditioned influent fluid sample stream supplied thereto. A control unit receives signals representative of the monitored chemical characteristics from the continuous on-line monitors and the ion chromatograph unit and uses these signals in a feedback loop to control the monitoring system and to detect, analyze and correct steam cycle water chemistry changes before corrosion or other problems related to water chemistry imbalances. The control unit controls the monitoring system by determining the sequence in which the plural influent fluid sample streams are supplied to the ion chromatograph unit, controlling the monitoring performed by the ion chromatograph unit, and automatically calibrating the continuous on-line monitors and the ion chromatograph unit.

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