December 30, 2005

MEMORANDUM TO: James E. Dyer, Director
Office of Nuclear Reactor Regulation

FROM: Carl J. Paperiello, Director **/PA/ J. Wiggins for**
Office of Nuclear Regulatory Research

SUBJECT: IMPENDING PUBLICATION OF FINAL DRAFT NUREG/CR-XXXX, "TECHNICAL REVIEW OF ONLINE MONITORING TECHNIQUES FOR PERFORMANCE ASSESSMENT, VOLUME I: STATE-OF-THE-ART"

I am forwarding for your information the enclosed final draft NUREG/CR-XXXX, "Technical Review of Online Monitoring Techniques for Performance Assessment, Volume I: State-of-the-Art." The Office of Nuclear Regulatory Research (RES) plans to submit this manuscript for publication in 2 weeks.

The RES staff initiated this study as part of the NRC's Digital Instrumentation and Control Research Plan (see ADAMS Accession #ML011990569), to investigate online monitoring (OLM) techniques and their applications in nuclear power plants. In 1998, the Electric Power Research Institute (EPRI) submitted Topical Report (TR) 104965, "On-Line Monitoring of Instrument Channel Performance," for NRC review and approval. This report demonstrated a non-intrusive method for monitoring the performance of instrument channels and extending calibration intervals required by technical specifications (TS). In 2000, the NRC issued a related safety evaluation report (SER), in which the staff concluded that the generic concept of OLM is acceptable for use in tracking instrument performance as discussed in the topical report. However, the staff also listed 14 requirements that must be addressed in plant-specific license amendments if the NRC is to relax the TS-required calibration frequency for safety-related instrumentation. The SER neither reviewed nor endorsed either of the two methods addressed in EPRI TR-104965.

The enclosed report is the first volume of a two-part, contractor-prepared NUREG-series report, which will provide an overview of current technologies being applied in the United States to monitor sensor calibration. As Volume I of this two-part report, the enclosed volume provides a general overview of current sensor calibration monitoring technologies and their uncertainty analysis, a review of the supporting information needed to assess these techniques, and a cross-reference between the literature and the requirements listed in the SER. Volume II will present an in-depth theoretical study and independent review of the most widely used online sensor calibration monitoring techniques, and it will included a presentation of the theory and a listing and evaluation of the assumptions inherent in the methods. Volume II is scheduled to be provided to NRR for review in the second quarter of FY 2006.

The Office of Nuclear Reactor Regulation (NRR), Division of Engineering (DE), reviewed a previous draft of this report, and the enclosed final draft reflects the resultant feedback. Please feel free to contact me or Steven Arndt of my staff (at 301-415-6502 or SAA@nrc.gov) if you have any questions concerning the impending issuance of this report.

Enclosure: As stated

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