ENCLOSURE 1

EVALUATION OF VEPCO LETTERS
ON USE OF WESTINGHOUSE METHODS AND QUALITY ASSURANCE
IN RELOAD DESIGN

INTRODUCTION

On May 16 and 17, 1984 staff members accompanied by technical assistance consultants from Brookhaven National Laboratory conducted an audit of Vepco capability to perform reload design and non-LOCA safety analyses for the Surry and North Anna Power Stations using Westinghouse computer codes. The audit was conducted at the Vepco offices in Richmond, Virginia. As part of the staff evaluation of the acceptability of the interim use of the Westinghouse methods by Vepco, in a letter dated June 19, 1984, we requested two letters from Vepco, one of which would describe the Vepco use of the Westinghouse computer codes for reload design and safety analysis, and the other which would describe the quality assurance procedures used to assure an acceptable level of confidence in the results obtained. The purpose was to document information received during the audit meetings. The requested information was provided by Vepco in two letters dated October 9, 1984, Serial Nos. 553 and 554, respectively, and is the subject of this evaluation.

EVALUATION

In letter Serial No. 553, Vepco indicates the basis for the reload design and non-LOCA safety analysis procedures is WCAP-9272 (Westinghouse Reload Safety Evaluation Methodology, March 1978). By examination of key nuclear parameters it is determined whether a core configuation is bounded by existing safety analyses. If not, postulated accidents are either re-evaluated or reanalyzed. In the latter case, standard safety analyses methods consistent with the licensing bases in the Updated Final Safety Analysis Reports for the powerplants are employed.

The letter contains a tabulation of the extensive training of Vepco personnel in the reload design and non-LOCA safety analysis areas. Further, reload designs for Surry 2 Cycle 6, North Anna 2 Cycle 2, North Anna 1 Cycle 4, and Surry 1 Cycle 7, as well as several non-LOCA safety analyses were performed and compared with Westinghouse analyses to provide additional training and experience.

The letter also contains a tabulation of the calculations performed by Vepco using the Westinghouse computer codes, and a brief description and names of the codes used. Finally, checks and documentation of the results are described.

In letter Serial No. 554, quality assurance procedures for the nuclear core reload design and safety analysis activities are described. The analyses are conducted in accordance with design and document control requirements of the Vepco Quality Assurance Manual and the Vepco Nuclear Power Station Quality Assurance Manual. The general controlling procedures for the analyses are contained in the Nuclear Fuel Engineering (NFE) Policy and Procedures Manual. These procedures require the results of all production calculations to be documented in calculational notes. The procedures then require all production calculations to be verified independently by a cognizant engineer to ensure that the calculation was performed in accordance with all applicable instructions, is analytically correct, and meets all acceptance criteria. The verification is documented by the review engineer signing the calculational note.

We conclude that letters Serial Nos. 553 and 554 adequately describe Vepco use of Westinghouse computer codes for reload design and non-LOCA safety analysis and Vepco's quality assurance program.