

VIRGINIA ELECTRIC AND POWER COMPANY

RICHMOND, VIRGINIA 23261

October 30, 1989

United States Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D. C. 20555

Serial No. 89-654  
PES/DMB:cdk R1  
Docket Nos. 50-280  
50-281  
50-338  
50-339  
License Nos. DPR-32  
DPR-37  
NPF-4  
NPF-7

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY  
SURRY POWER STATION UNITS 1 AND 2  
NORTH ANNA POWER STATION UNITS 1 AND 2  
RESPONSE TO GENERIC LETTER 88-20 AND SUPPLEMENT 1  
INDIVIDUAL PLANT EXAMINATION FOR  
SEVERE ACCIDENT VULNERABILITIES

INTRODUCTION

Generic Letter 88-20, "Individual Plant Examination for Severe Accident Vulnerabilities," requested holders of operating licenses to perform an Individual Plant Examination (IPE) of their plants for severe accident vulnerabilities. Supplement 1 to Generic Letter 88-20, "Initiation of the Individual Plant Examination for Severe Accident Vulnerabilities," announced the availability of NUREG-1335, "Individual Plant Examination: Submittal Guidance" and required submittal of a proposed program, identifying method and schedule, for completing the IPE.

The proposed Virginia Electric and Power Company program includes the development of Level I and II PRAs as described in the following discussion. The Level I part of the PRA model will be a detailed plant specific determination of core damage frequency. The Level II analysis for each unit will be a less detailed evaluation of containment performance that relies extensively on the work performed by Sandia National Laboratory to address severe accident risks at Surry (NUREG-1150).

METHOD OF EXAMINATION

Individual models will be produced for each of the four nuclear units. Because the units at each station are nearly identical, the Unit 1 model will be developed first. The Unit 2 model will be developed based on the existing Unit 1 model, incorporating any differences identified for Unit 2. Dependency matrices will be developed for both units. Shared systems will be explicitly represented in the models for each unit.

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The work will be performed in a sequential fashion. Existing NUREG-1150 models for Surry will be updated and expanded. Because Surry has recently completed an extensive outage, many design changes must be incorporated into the NUREG-1150 models. The original NUREG-1150 work must also be documented to a level sufficient to meet the requirements of GL 88-20. Following completion of the Surry models, the North Anna models will be developed. Applicable Surry work, such as event trees and the frontline systems, will be used in the North Anna evaluation. However, North Anna systems models will be based on the current plant configuration.

The PRA models developed for this program will meet or exceed the requirements of the generic letter. PRA software developed by NUS Corporation (NUPRA PRA workstation) will be used to perform the IPE. Plant specific data will be developed for the components listed in the submittal guidance document (NUREG-1335) where possible; otherwise generic data will be utilized. The quality assurance plan for this project has been designed to meet the requirements of 10 CFR 50, Appendix B. The human factors work will be based on a recognized human factors methodology (SHARP) and will be supplemented with experiments performed on the full scope plant specific simulators.

The containment evaluation will be performed using the containment structural evaluation from the NUREG-1150 results, MAAP analyses, and the results from prior PRAs to determine the timing and split fractions for those events making up the containment event tree (CET). MAAP will also be used to verify certain success criteria. Consistent with NRC guidance in NUREG-1335, the CET will contain fewer events than the one in NUREG-1150. These events will generally represent the uncertainties in the possible phenomenological accident progression pathways.

### PROJECT TEAM

The project team includes three analysts from the corporate engineering department assigned to the project. Supporting the analysts are designated individuals from key parts of the station and corporate organizations. These individuals include system engineers, senior reactor operators, shift technical advisors, and licensing engineers. Finally, NUS Corporation has been selected to provide the PRA expertise. The total manhours allocated for the project are presently estimated to be equally divided between inhouse analysts and those from NUS Corporation. We believe that this level of participation should ensure adequate technology transfer during the project.

The independent review function will be addressed in two ways. First, the program is subject to a quality assurance plan which requires that analyses be independently reviewed. Second, an independent review team will be convened twice for each station analysis. The first review is planned prior to the initial sequence quantification for Unit 1 and the second review is to take place on completion of the interpretation of results for Unit 1. It is currently planned that the Surry review team will consist of personnel from training, procedures and the corporate independent review function. An independent consultant will be retained to coordinate this activity. A similar team will be assembled for the North Anna model review.

## WALKDOWNS

A substantial number of system walkdowns have been recently performed at Surry. Therefore, for the purposes of the IPE only limited walkdowns for specific information may be necessary at Surry. The analysts and system engineers will determine if the existing walkdown and supporting documentation are sufficient or if additional walkdowns are necessary. A similar evaluation will be performed for the systems included in the North Anna Level I model. Additionally, the project team has available to it the Videodisc Information Management System (VIMS), which permits analysts to view system configurations using a microcomputer based laser disc system.

## SCHEDULE

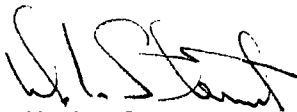
We have already initiated our IPE program. The bid specification was issued and bids were evaluated during the fourth quarter of 1988. Final contractor selection was made in February and work began in March of this year. As a result, the Surry effort is at about the midpoint. Individual milestones are listed below for both stations:

<u>MILESTONE</u>	<u>SURRY</u>	<u>NORTH ANNA</u>
° Project Plan	04/89	04/90
° 60 Day Letter to NRC	11/89	11/89
° Initiating Events and Success Criteria	06/89	08/90
° Containment Analysis	11/89	02/91
° Initial Sequence Quantification	01/90	12/90
° Final Sequence Quantification	03/90	01/91
° Draft Final Report	09/90	09/91
° Final Report to NRC	11/90	12/91

## CONCLUSION

We believe that the proposed program exceeds the requirements of GL 88-20. It is the intent of Virginia Electric and Power Company to produce state-of-the-art PRAs with full quality assurance reviews. Due to the sequential nature of our plan for submittal, work on the Surry units is well under way and is expected to be submitted for NRC review in late 1990. The identified schedule is based on the assumption that the program identified in this letter, including the work performed to date, are consistent with NRC expectations. If any facet of this program does not appear to meet GL 88-20 criteria, please notify us immediately in order to discuss and resolve the concerns before they impact our proposed submittal schedule.

Very truly yours,



W. L. Stewart  
Senior Vice President - Power

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COMMONWEALTH OF VIRGINIA )  
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COUNTY OF HENRICO )

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by W. L. Stewart who is Senior Vice President - Power, of Virginia Electric and Power Company. He is duly authorized to execute and file the foregoing document in behalf of that Company, and the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 30 day of October, 1989.

My Commission Expires: February 25, 1990.

*Vicki L. Hull*

Notary Public

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