April 12, 1996

Mr. J. P. O'Hanlon
Senior Vice President - Nuclear
Virginia Electric and Power Company
5000 Dominion Blvd.
Glen Allen, Virginia 23060

SUBJECT: NORTH ANNA UNITS 1 AND 2 - REQUEST FOR ADDITIONAL INFORMATION RELATED TO PROPOSED CHANGES FOR EMERGENCY DIESEL GENERATOR ALLOWED OUTAGE TIMES (TAC NOS. M93415 AND M93416)

Dear Mr. O'Hanlon:

By letter dated September 1, 1995, you proposed changes to the plants' Technical Specifications. In order for us to continue our review we need additional information (see enclosure). The enclosed questions were discussed with Mr. T. Shaub of your staff on April 8, 1996. Please provide your response by May 1, 1996.

Sincerely,

(Original Signed By)

Gordon E. Edision, Sr. Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-338
and 50-339

Enclosure: As stated

cc w/enclosure: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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Mr. J. P. O'Hanlon
Virginia Electric & Power Company

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Units 1 and 2

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REQUEST FOR ADDITIONAL INFORMATION

EMERGENCY DIESEL GENERATOR ALLOWED OUTAGE TIME

NORTH ANNA UNITS 1 AND 2

(TAC NOS. M93415 AND M93416)

BACKGROUND

With regard to Technical Specifications (TS) changes, the NRC staff expects licensees to utilize a three-tier approach in proposing risk-based modifications and associated amendments.

In the first tier, the licensee is expected to determine the change in plant operational risk (specifically, the change in core damage frequency (CDF) and core damage probability (CDP)) as a result of the proposed TS modification and discuss its significance. In addition, in order to better understand the impact of the amendment on containment performance, the staff expects the licensee to perform an analysis of the large early release frequency (LERF) under the modified TS conditions and discuss the results or, if applicable, an analysis of offsite consequences.

In the second tier, it is intended for the licensee to provide reasonable assurance that risk-significant plant equipment outage configurations will not occur while the plant is subject to the Limiting Condition for Operation (LCO) proposed for modification.

The purpose of the third tier is to assure that, before performing maintenance activities including removal of any equipment from service, the licensee performs a thorough assessment of the overall impact on safety functions of related TS activities, as required by the proposed Maintenance Rule. This should be an intrinsic part of all maintenance scheduling.

The staff's review consists of an assessment of (1) the appropriateness of licensee activities in each tier, (2) the applicability of the licensee's probabilistic risk assessment (PRA) methodology to support the proposed TS change, and (3) an evaluation of the impact of the proposed TS change on plant operational risk and containment performance, and the adequacy of licensee proposed compensatory measures.

The staff's final recommendation will be contingent upon the licensee's commitment to the compensatory measure, insights and findings based on the PRA model, and the adequacy of relevant portions of the licensee's program to meet the requirements of the Maintenance Rule, which will be in effect as of July 1996.

QUESTIONS

Three sets of questions that correspond to these three tiers have been developed as follows:

(A) Tier 1

(a) Probabilistic safety assessment (PSA, or PRA)

What are success criteria for the station blackout (SBO) condition at North Anna 1/2? Can any one EDG mitigate SBO? Is this modelled in the PRA? Please explain.

How are the minor asymmetries in the Unit 1 and 2 electrical power supplies accounted for in the PRA modeling?

What review of the PRA has been made to ensure that the PRA represents the as-built, as-operated plant, and contains the fine structure (resolution) necessary to evaluate the proposed TS requirements? Were any changes made to the PRA due to such reviews?

Your current PRA is said to be different from your IPE. Explain any major differences. Among those differences, are any related to SBO sequences?

Please provide the minimal cut set truncation cutoff used to quantify the plant CDF changes. In particular, indicate what efforts were made to avoid underestimation when the impact calculated was negligible or non-existent.

Provide a discussion of the loss of offsite power (LOOP) events at your facility.

Explain what severe weather conditions you are expecting at your facility and how this was addressed in the PRA. Are you committed to any of the severe weather shutdown requirements and procedures of NUMARC 87-00? How do you plan to require avoidance of entering the 14 day AOT if severe weather is approaching?

Please describe the peer reviews performed on your PRA. Indicate which reviews were performed in-house versus those performed by outside consultants. Summarize their overall conclusions.

(b) Quantitative results

Please provide the following calculations and quantitative PRA results due to the AOT extension:

(1) Change in average CDF (Δm(CDF)):

m(CDF) = average CDF (per year)

m_2(CDF) = The conditional m(CDF) with the proposed 14 day AOT in place

m_1(CDF) = The original m(CDF) with the current 3 day AOT in place

Therefore, $\Delta m(CDF) = m_2(CDF) - m_1(CDF)$

(2) Change in instantaneous CDF (ΔCDF_i):

$CDF_i(2)$ = The conditional CDF when the plant is in the AOT

$CDF_i(1)$ = The CDF when the plant is <u>not</u> in the AOT

i = a particular AOT configuration

Therefore, $\Delta CDF_i = CDF_i(2) - CDF_i(1)$

(3) Change in conditional core damage probability (ΔCCDP):

CCDP(2) = The CCDP while the plant is in the AOT

CCDP(1) = The CCDP while the plant is <u>not</u> in the AOT

Therefore, $\Delta CCDP = CCDP(2) - CCDP(1)$

(4) Change in average large early release frequency (ΔLERF)

LERF(2) = LERF with proposed AOT in place

LERF(1) = LERF with current AOT in place

Therefore, $\Delta LERF = LERF(2) - LERF(1)$

What are the projected average corrective maintenance and preventive maintenance downtimes for EDGs used in your calculations? Explain how they are obtained. Have you performed any sensitivity analyses on your CM and PM downtimes that affect the risk results in the previous question? If so, please discuss insights gleaned from the study.

Have you performed any sensitivity analysis for this requested AOT change? If so, discuss how your results ensure the PRA results in your application are robust and not subject to an unexpected sudden increase in the risk profile.

(B) Tier 2

Given the AOT plant configuration, what does your PRA indicate are the other risk-significant systems? Is the significance the same for each EDG, or EDG combination? Please explain the results.

For the systems you identified in the previous question, how would you ensure that no risk-significant plant equipment outage configurations would occur while the plant is subject to the LCO proposed for modification? Are the bases for this assurance reflected in your procedures or TS?

Have you thoroughly reviewed your TS to see if there are needs for any other changes to your TS or (in addition to the TS amendment items you are currently requesting) due to your request for an EDG AOT of 14 days once per 18 months? Please identify any TS changes made to ensure that the plant will not enter any risk-significant plant configuration while in the AOT.

(C) Tier 3

Are you capable of performing a "real-time" assessment of the overall impact on safety functions of related TS activities before conducting maintenance activities including removal of any equipment from service? Please explain how this tool, or other processes, will be used to ensure that risk-significant plant configurations will not be entered during the AOT? Please describe how this explanation will be incorporated in the TS Bases.

Explain how you are going to address the issue of configuration control, consistent with the Maintenance Rule, i.e., evaluate the impact of maintenance activities on plant configurations.