June 10, <u>1999</u>

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

SUBJECT: SURRY UNITS 1 AND 2 - REQUEST FOR ADDITIONAL INFORMATION ON IPEEE SUBMITTAL (TAC NOS. M83681 AND M83682)

Dear Mr. O'Hanlon:

The purpose of this letter is to request additional information (RAI) so that we may continue to review the Surry Individual Plant Examination of External Events (IPEEE) submittal.

The enclosure to this letter includes questions related to fire analyses in the IPEEE. The questions were discussed with Mr. G. Miller of your licensing staff on May 5, 1999, and a response date of July 5, 1999 was agreed to.

Sincerely,

original signed by:

Gordon E. Edison, Senior Project Manager, Section 1 Project Directorate II Division of Licensing Project Management Office of Nuclear Reactor Regulation

Docket Nos. 50-280 and 50-281

Enclosure: As stated

cc w/encl: See next page

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UNITED STATES NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

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LE Editor

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

cc:

Mr. Donald P. Irwin, Esq. Hunton and Williams Riverfront Plaza, East Tower 951 E. Byrd Street Richmond, Virginia 23219

Mr. E. S. Grecheck Site Vice President Surry Power Station Virginia Electric and Power Company 5570 Hog Island Road Surry, Virginia 23883

Senior Resident Inspector Surry Power Station U. S. Nuclear Regulatory Commission 5850 Hog Island Road Surry, Virginia 23883

Chairman Board of Supervisors of Surry County Surry County Courthouse Surry, Virginia 23683

Dr. W. T. Lough Virginia State Corporation Commission Division of Energy Regulation P. O. Box 1197 Richmond, Virginia 23209

Robert B. Strobe, M.D., M.P.H. State Health Commissioner Office of the Commissioner Virginia Department of Health P.O. Box 2448 Richmond, Virginia 23218 Surry Power Station

Office of the Attorney General Commonwealth of Virginia 900 East Main Street Richmond, Virginia 23219

Mr. J. H. McCarthy, Manager Nuclear Licensing & Operations Support Innsbrook Technical Center Virginia Electric and Power Company 5000 Dominion Blvd. Glen Allen, Virginia 23060

Mr. W. R. Matthews Site Vice President North Anna Power Station Virginia Electric and Power Company P. O. Box 402 Mineral, Virginia 23117

SURRY IPEEE

Supplemental Request for Additional Information

Based on your submittal and response to requests for additional information (RAIs) received to date (in your September 28, 1998, letter entitled "Virginia Electric and Power Company, Surry Power Station, Units 1 and 2, North Anna Power Station, Units 1 and 2, Individual Plant Examination of External Events (IPEEE), Request for Additional Information") for the Surry IPEEE, the staff is unable to conclude at this time that you have met the intent of Supplement 4 to GL 88-20, and we need more information before we can complete our review.

In particular, the response provided to the previous fire RAI #3 has not fully answered the question. The Surry fire analysis assumed a cable ignition temperature of 773°K (932°F) (see page 4-18 of the submittal). The study cites NUREG/CR-4550, but this value is significantly optimistic in comparison to piloted ignition temperatures observed in more recent tests by Sandia National Laboratories (SNL) (ref. NUREG/CR-5546) and recommended in FIVE. The SNL tests show that the piloted ignition temperature for cables will be as low or lower than the thermal damage threshold. The FIVE methodology (p. 10.4-7 and Table 1E) provided guidance consistent with these newer SNL tests. Specifically, FIVE recommends that the piloted ignition and damage threshold temperatures be assumed to be the same (425°F for unqualified cables and 662°F for qualified cables). The use of the higher piloted ignition temperature in the Surry analysis may have resulted in the optimistic treatment of cable fire growth behavior.

Further, the analysis has assumed a damage temperature of 623°K (662°F). This value is only appropriate for IEEE-383 qualified cables. The response to the previous fire RAI #3 did not fully substantiate that the cables at Surry are indeed equivalent to the full spectrum of tests associated with IEEE-383 qualification. More specifically, the response did not substantiate that the damage temperature used is an appropriate indication of the damage threshold of the cables actually used at Surry. The assessment of damage threshold should consider the type of insulation material used in cable construction and the available test data for various cable types.

- (1) Provide an assessment of the impact on the analysis results (CDF) if the cable piloted ignition temperature is assumed to be the same as the cable damage threshold.
- (2) Please provide a more complete technical basis for assuming that the cables used at Surry are equivalent to IEEE-383 qualified cables. In particular, describe the type of insulation and jacketing materials used at Surry and demonstrate these materials are typical of cable constructions known to pass the IEEE-383 qualification standard. If this assumption cannot be substantiated on this basis, provide an assessment of the impact on CDF if properties of non-qualified cables are assumed.

Enclosure