

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

W. L. STEWART
VICE PRESIDENT
NUCLEAR OPERATIONS

February 23, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
Attn: Mr. David G. Eisenhut, Director
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Serial No: 057
NO/DWL:jab
Docket Nos. 50-280
50-281
License Nos. DPR-32
DPR-37

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION
NUREG-0737, ITEM II.F.2

The purpose of this letter is to provide the attached Implementation Letter Report for the Surry Power Station Reactor Vessel Level Instrumentation System (RVLIS) which was requested by your letter dated January 17, 1984. Also, Vepco requests that the NRC review this information and approve the use of the installed RVLIS based on their previous acceptance of the generic Westinghouse vessel level instrumentation approach and on the status of system implementation as provided by this letter.

We have previously submitted a request for changes to the Surry Technical Specifications (Serial No. 186 dated March 31, 1983) which would provide for appropriate LCOs for RVLIS. As indicated in our March 31, 1983 letter, the issuance of RVLIS Technical Specification needed to be coordinated with our implementation of revised Emergency Operating Procedures. As indicated in the attached letter report, our revised EOPs are in place. Therefore, it is our intent to let your issuance of the proposed RVLIS Technical Specification changes constitute your acceptance of our plant-specific vessel level instrumentation system.

Enclosure 1 of your January 17, 1984 letter requested additional information regarding the design of the core subcooling monitor and core exit thermocouple systems. Recently, Vepco completed our review of Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," for Surry Power Station as was required by Supplement 1 to NUREG-0737 (Generic Letter 82-33). Both core exit thermocouples and core subcooling monitors were addressed in this review. Our core subcooling monitors were assessed to be in compliance with Regulatory Guide 1.97. Our review indicated that the core exit thermocouple system would require an extensive upgrade to meet the Regulatory Guide 1.97 criteria. This upgrade will be performed on a schedule for Regulatory Guide 1.97 implementation which will be reviewed and approved by the NRC.

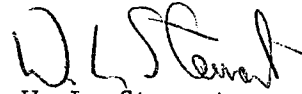
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VIRGINIA ELECTRIC AND POWER COMPANY TO Mr. Harold R. Denton

The requirements for subcooling monitor and core exit thermocouple systems which are provided in NUREG-0737 Item II.F.2 are in excess of the criteria in Regulatory Guide 1.97. Regulatory Guide 1.97 represents the more recent and what is believed to be the more technically refined NRC approach to post-accident monitoring instrumentation. Therefore, Vepco's position is that demonstrating compliance with or upgrading as necessary to Regulatory Guide 1.97 provides sufficient assurance in the areas of post-accident monitoring of inadequate core cooling to comply with the intent of Item II.F.2 of NUREG-0737.

Very truly yours,


W. L. Stewart

cc: Mr. James P. O'Reilly
Regional Administrator
Region II

Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Mr. Don J. Burke
NRC Resident Inspector
Surry Power Station

RVLIS IMPLEMENTATION STATUSStatus of installation, functional testing, and calibration of each RVLIS system:

Installation and testing per the respective Design Change Packages is complete for both Units. All calibrations were performed but with non-site specific scaling data in the microprocessor electronics. Both systems were proven operable under those conditions.

The only outstanding problems (identified during testing) were with the microprocessor circuit boards. They were:

1. Units 1 and 2, Trains A and B: The A3 memory boards (4) were shipped to Westinghouse for seismic, human factors, and scaling modifications.
2. Unit 1, Train B - Problem with the A7 I/O expansion board; Westinghouse to correct on site.
3. Unit 2, Train A - Defective A7 I/O expansion board and TB105 motherboard were shipped to Westinghouse for repairs.
4. Units 1 and 2, Recorders - Recorders needed to be linearized with the control room displays.

All the boards sent to Westinghouse were received back at Surry in mid-December. Westinghouse came to Surry in early 1984 to do a final check on the system with the updated microprocessor circuit boards and implement item 4 above. All problems identified above were resolved and site specific scaling data was installed.

Summary of conclusions regarding system performance based on testing and experience to date:

1. Assuming all components function as designed, RVLIS will provide an accurate indication of Reactor Vessel hydraulic conditions.

Basis: System Design

2. System reliability is questionable.

Basis: During installation, test, and calibration numerous electrical and mechanical problems have arisen indicating a possible trend. Until the system is placed fully in service and allowed to "soak in", it is not known if the trend will continue.

3. Maintenance of the system could be costly.

Basis: Approximately \$300K worth of spare parts (primarily PC boards and electrical components) have been ordered. If the trend noted in (2) continues this stock will be depleted at a higher than acceptable rate. In addition, if a major leak occurs in the hydraulic portion of the system, it will cost approximately \$50K to repair, refill and recalibrate. It should be noted that this is a very low probability occurrence.

Description of any deviations from the as-built system from previously submitted design information:

1. The original system design required a bypass line around the differential pressure transmitters. Problems with the Westinghouse supplied Autoclave valves in the bypass loop resulted in a re-evaluation of the design. The conclusion reached (by Westinghouse) was to eliminate the bypass loop altogether. The bypasses have been eliminated in the Unit 1 and 2 RVLIS systems.
2. The original system design provided display variables terminology which was inconsistent with the Westinghouse Owners Group Procedures Subcommittee. Software changes have been made by Westinghouse to provide compatible display terminology with the new station EOPs.

Status of RVLIS usage in existing and planned EOPs:

RVLIS is included in Status Trees and Functional Restoration Procedures only. Use of the RVLIS display data in the procedures is dependent upon system availability.

If RVLIS is available, the procedures utilize RVLIS data as one of the usable parameters which governs subsequent actions and steps. If the system is unavailable, the user is directed to other sections of the procedure which utilize parameters other than RVLIS to govern subsequent actions and steps.

There are no plans for use of RVLIS data in any other procedures than those listed below.

Status Trees:

- Core Cooling
- Inventory

FRPs:

- FRP-C.1 Response to Inadequate Core Cooling
- FRP-C.2 Response to Degraded Core Cooling
- FRP-I.3A Response to Void in Reactor Vessel
- FRP-P.1 Response to Imminent Pressurized Thermal Shock.