UNITED STATES
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APR 10 1986

Docket Nos.: STN 50-601

MEMORANDUM FOR: Vincent S. Noonan, Director
PWR Project Directorate #5
Division of PWr Licensing-A

FROM: S. Long, Project Manager
PWR Project Directorate #5
Division of PWR Licensing-A

SUBJECT: MEETINGS TO DISCUSS PRELIMINARY QUESTIONS ON MODULE 9 OF RESAR-SP/90

DATES, TIMES AND LOCATION: April 23 and 24, 1986
8:30 a. m.
Westinghouse Nuclear Energy Center
Monroeville, Pennsylvania

PURPOSE: To discuss preliminary questions on instrumentation and control section of Module-9 of RESAR-SP/90. Meeting agenda is enclosed.

PARTICIPANTS:

NRC	Westinghouse
S. Long	M. Shannon
F. Burrows et.al	W. Shively et.al

Chandu P. Patel for
S. Long, Project Manager
PWR Project Directorate #5
Division of PWR Licensing-A

Enlosure:
As stated

NOTE: Members of the public interested in attending the above meetings should call (301) 492-9784.

ENCLOSURE

RESAR SP/90 AGENDA ITEMS

(1) In Section 3 of Module 2, "Regulatory Conformance," a discussion of general conformance to the requirements of NUREG-0737 is provided. Please discuss, using detailed piping diagrams, electrical elementaries, etc. (if available), how the RESAR SP/90 design conforms (or will conform) to the requirements of NUREG-0737 for the following TMI Action Plan Items:

(a) II.B.1 - Reactor Coolant System Vents

(b) II.D.3 - Relief and Safety Valve Position Indication

(c) II.E.1.2 - Auxiliary Feedwater System Automatic Initiation and Flow Indication

(d) II.E.4.2 - Containment Isolation Dependability (Subparts 4,5, and 7)

(e) II.F.1 - Additional Accident-Monitoring Instrumentation (Subparts 4, 5, and 6)

(f) II.K.3.1 - Installation and Testing of Automatic Power - Operated Relief Valve Isolation System

(g) II.K.3.9 - Proportional Integral Deriative Controller Modification

(h) II.K.3.10 - Proposed Anticipatory Trip Modification

(i) II.K.3.12 - Confirm Existence of Anticipatory Reactor Trip Upon Turbine Trip

(2) On page 7.1-28 of Module 9 a statement is made that channels may be bypassed (one or two) for an indefinite period of time. Please discuss this in terms of system availability, component drift effects on setpoints, and overall determination of surveillance intervals from a technical specifications standpoint.

(3) Discuss the statement "The aspects of the design which permit channel bypass while maintaining immunity to inadvertent initiation of a protective function do not need to be applied to specific channels where improved reliability is not deemed necessary" found on page 7.1-46 of Module 9. Does this statement mean that the bypass feature will be used only for specific, selected channels and that some protection system channels will not have the voting logic? If this is the case, provide a discussion of the reliability criterion used and provide an example of a channel not selected for the voting logic.

(4) Using detailed electrical schematics, describe how manual actuation signals, via the logic cabinets, control typical engineering safety features components? Discuss independence of manual and automatic actuation portions of the system in the context of Section C.4 of Regulatory Guide 1.62, "Manual Initiation of Protective Actions."

(5) Discuss the statement "Error detection will not involve error correction. Where practical the on-line error detecting features implemented in the IPS will be designed to automatically place the channel in which the error was detected into a trip or bypass mode (either by direct bypass or reconfiguration)." found on page 7.1-36 of Module 9. Also, from a technical specifications standpoint and system availability considerations discuss the statement "In the case of the automatic trip mode the operator shall have the option to place the channel in a bypass mode in a short period of time." found on page 7.1-36.

(6) Discuss how the statements on pages 7.1-52 and 53 of Module 9 relate to the current Westinghouse setpoint methodology and the use of "trigger values" to determine "allowable values" for technical specifications.

(7) Using detailed electrical schematics/logic diagrams, discuss reactor trip actuation and the use of the bypass capability. Include a discussion of

the statement "If a trip of two remaining pairs occurs while one is in bypass, then that one will be tripped as well." found on page 7.1-65 of Module 9.

(8) Using functional diagrams similar to those shown in Figure 7.2-1, of Module 9, provide a discussion of the overall logic for a typical sensor channel from sensor through the reactor trip actuation and generation of P-16. Discuss Note 3 shown of Sheet 3 of Figure 7.2-1.

(9) Discuss the statement "The actuation logic for ESF which is contained in the ESFAC and logic cabinets will not be bypassed for test. Instead, the output of one of the two ESF logic trains in a cabinet in test will be placed in a trip condition." found on pages 7.3-10 and 11 of Module 9. Does this statement imply that the logic will not be tested during normal plant operation?

(10) Paragraph 7.4.1.1 of Module 9 lists the necessary indicators provided for hot standby. Discuss the apparent lack of necessity for T_{hot}/T_{cold} or T_{avg}, source range neutron flux, emergency feedwater flow and supply tank level indicators as related to plant shutdown.

(11) On-line testability of RHR isolation valves is discussed on page 7.6-4 of Module 9. Using detailed electrical elementaries, describe the interlock circuitry for these valves and discuss how testing will encompass all inputs (including valve position signals) to this interlock logic.

(12) Paragraph 7.7.1.12 of Module 9 discusses the signal selector used to meet the requirements of Section 4.7 of IEEE-STD-279. Describe in detail the signal selector and discuss how paragraph 4.7.3 of IEEE-STD-279 is met in light of automatic bypass logic.

(13) Describe how test procedures will independently verify operability of the undervoltage coils and shunt trip coils of the reactor trip breakers for both automatic and manual actuation.

(14) On page 7.3-4 of Module 9 the following statements are made:

- "The safety injection signal may be manually reset after 30 to 750 seconds following initiation."

- "However, the operator cannot take manual control of any safeguards component actuated by the safety injection signal, until the SI signal is first reset."

Similar statements (except with 120 seconds in lieu of 750 seconds) are also found of page 7.3-21 of Module 9. Discuss if these statements imply that the operator is prevented from manual initiation as well as manual termination of safety-related actions. Also discuss these statements in light of control room evacuation with subsequent SI.

(15) Table 1.8-1, "Standard Review Plan Deviations," in Module 9 is currently not filled in. Discuss any deviations from Chapter 7 of the Standard Review Plan (SRP), NUREG-0800, known at this time.

(16) Our review revealed that conformance to only one SRP Chapter 7 Branch Technical Position was included in Module 9. Please discuss conformance with all the BTP's listed in Chapter 7 of the SRP.

(17) Our review indicates that conformance statements relating to GDC's and RG's applicable to Chapter 7 of the SRP cannot be clearly understood and easily related to appropriate sections of Module 9. Please provide a matrix similar to that found in Table 7-1 of the SRP including positive conformance statements where applicable.

(18) Interlocks for various valves are mentioned in Sections 5.4.7.2 and Section 6.3.2.1 of Module 1. Our review indicates that most of these interlocks are not discussed in Section 7.6 of Module 9 as appropriate (see the SRP). Using detailed logic diagrams, P&ID's, and electrical schematics, provide a discussion of all interlock systems important to safety.

(19) Section 15.6.3.1(f) in Modules 6/8 refers to two parallel overflow valves opened by two-out-of-four high water level signals. Discuss the design basis for this function. Are these the same level channels used for feedwater isolation?

(20) Section 7.5.4 in Module 9 refers to Module 15 for a description of the Bypassed and Inoperable Status Indication (BISI) System. Since Module 15 has not been submitted for the staff's review at this time, discuss the design of the BISI System using detailed design drawings. Provide information to describe the design philosophy used in the selection of equipment/systems to be monitored. The design philosophy should describe as a minimum the criteria to be employed in the display of inter-relationships and dependencies of equipment/systems and to insure that bypassing or deliberately induced inoperability of any auxiliary or support system will automatically be indicated for all safety systems affected.

(21) Section 7.5.2.3.1.3 (c) of Module 9 uses the channel availability level statement associated with Category 2 in lieu of Category 1 instrumentation per R.G. 1.97 (Revision 3). Discuss these differences.

(22) Tables 7.5-5 through 7.5-8 provide summaries of Type B through Type E variables. Discuss deviations in categorization from R.G. 1.97 (Revision 3).

(23) In Section 7B.5 of Module 9 the statement "Refer to ANS Standard on QA" is made. Please discuss this statement as related to software verification.

(24) On page 7.1-43 of Module 9 the statement "Adequacy of the hardware and software will be demonstrated for the RESAR-SP/90 through a prototype verification and validation (V&V) program similar to the RESAR-414" is made. Please discuss any differences between the RESAR 414 and the SP/90 V&V programs. Include a discussion for the RESAR-SP/90 design process as related to conformance to R.G. 1.152 and ANSI/ IEEE-ANS-7-4.3.2-1982.

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