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Electric Corporation

Water Reactor
Divisions

Nuclear Equipment Divisions
Box 355
Pittsburgh Pennsylvania 15230

NS-EPR-2650

August 26, 1982

Mr. Leo Beltracchi
Human Factors Engineering Branch
Division of Human Factors Safety
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Beltracchi:

We have reviewed your, "Draft Audit Plan, SPDS Design Verification, Westinghouse," and find that many of the items identified for discussion at this first audit meeting, which covers the design basis and functional requirements, are the subject of subsequent audits which cover the integrated system design and the installation of the system. This letter contains three attachments which clarify our understanding and provide our position on the first technical audit.

Attachment I summarizes our allocation of NRC topics into the above three audit meetings; this attachment has been marked with the reference numbers used in your "Draft Audit Plan"; however, two topics have been subdivided into a, b, c, and etc., i.e., HFEB 1a and 1b; and HFEB 4a, 4b, 4c, and 4d. Please note that in several cases we have split the topics between two or even three audits depending on the particular focus of the topic. For example, Reactor Systems Branch topic 5 appears to deal with functional requirements, implementation of the integrated system, and installation of equipment; and, therefore, needs to be addressed in each of the three audits within the scope of each particular audit.

Attachment II provides copies of the overheads used at our May 6, 1982 meeting to show our interpretation of the audit program as given in NUREG 0835 and NSAC 39. This attachment shows the activities associated with each of the three audit meetings and is the basis for the allocations shown in Attachment I. Attachment III provides a schedule for the next audit meeting, marked with your reference numbers, and showing the time allocation for each topic covered in the audit.

We have assumed topic number 4 from the Reactor Systems Branch refers to item 6 under the SPDS section, section 4, of SECY 82-111, and will be covered by our response to topic 1 from the Reactor Systems Branch. If this interpretation is not correct, please clarify the topic. Also, please note that we have moved topic 5 of the Instrumentation and Control Systems Branch to the Reactor Systems Branch on the basis that the topic deals with the accuracy requirements from the viewpoint of the physical parameter measurement, and therefore is a part of the functional requirements, instead of the instrumentation system requirements which would be included in the detailed system specification.

X601

APP:

L. BELTRACCHI

The net result of our assessment of the draft audit plan with respect to the organizational disciplines involved is as follows:

1. With the exception of I&CSB topic #5 discussed above these topics are subjects for either Audit II or Audit III as defined in Attachment II.
2. Based upon their specific wording the topics submitted by the Core Performance Branch are the subject of Audit II and even Audit III since they deal with design or testing of the integrated system either at the factory or at the specific plant sites.

We hope you find this refinement to the audit schedule satisfactory, and look forward to our next meeting.

Very truly yours,



E. P. Rahe, Manager
Nuclear Safety Department

JWM/keg
Attachment(s)

Attachment I

	<u>Audit I Verification of Design Requirements</u>	<u>Audit II Validation of Integrated System</u>	<u>Audit III Verificaton of Correct Installation</u>
HFEB Topics	1*, 4, 2*	1*, 2, 3	
I&C Topics	5**	1, 4*, 6	2, 3, 4*
RSB Topics	IA-C, 2, 3, 4, 5*	5*, 6	5*, 7, 8
CPB Topics		1, 2, 3, 4 (If any)	
VPB Region IV Topics		1-4(?)	

*Denotes Split of Topic Between Audits

**See Text for Discussion of the Assignment of this Topic to RBS

TECHNICAL AUDIT OF THE SPDS

ACTIVITIES TO BE AUDITED:

I.

- VERIFICATION OF THE DESIGN REQUIREMENTS

II.

- VALIDATION OF THE INTEGRATED (SOFTWARE AND HARDWARE) SYSTEM

III.

- VERIFICATION OF THE CORRECT INSTALLATION OF THE EQUIPMENT

TECHNICAL AUDIT OF THE SPDS (CONTINUED)

VERIFICATION OF THE DESIGN REQUIREMENTS — *Audit I*

1. • EVALUATE THE PROCESS USED TO VERIFY THE DESIGN TO ACCESS ADEQUACY OF THE PROCESS.
2. • AUDIT THE FUNCTIONAL COMPLETENESS OF THE DESIGN AGAINST
 - DESIGNERS CRITERIA
 - FUNCTIONAL DESIGN CRITERIA GIVEN IN NUREG 0696 (SECTIONS 5.1 TO 5.5)GUIDANCE FOR ACCEPTANCE CRITERIA INCLUDES APPLICABLE SECTIONS OF NUREG 0700.
3. • AUDIT THE VALIDATION TEST PLAN AGAINST THE APPLICABLE DESIGN REQUIREMENTS.

TECHNICAL AUDIT OF THE SPDS (CONTINUED)

VALIDATION OF THE INTEGRATED SYSTEM — *Audit II*

1. • EVALUATE THE PROCESS USED TO VALIDATE THE INTEGRATED SYSTEM TO ACCESS ADEQUACY OF THE PROCESS.
2. • AUDIT THE VALIDATION TEST PROGRAM RESULTS AGAINST
 - FUNCTIONAL CONFORMANCE TO THE DESIGN REQUIREMENTS
 - RESOLUTION OF DEFICIENCIES FOUND DURING THE TEST
3. • AUDIT THE AS BUILT SYSTEM AGAINST THE DESIGN CRITERIA FOR THE INSTRUMENTATION SYSTEM
 - ESTABLISHED BY THE DESIGNER
 - GIVEN IN NUREG 0696 SECTION 5.6

GUIDANCE FOR ACCEPTANCE CRITERIA INCLUDE APPLICABLE SECTIONS OF 0700.

TECHNICAL AUDIT OF THE SPDS (CONTINUED)

VERIFICATION OF THE CORRECT INSTALLATION OF THE EQUIPMENT - *Audit III*

MOST OF THIS IS NORMALLY OUTSIDE WESTINGHOUSE SCOPE EXCEPT WHERE WESTINGHOUSE SPECIFIES INSTALLATION REQUIREMENTS FOR PROPER PERFORMANCE OF THE EQUIPMENT. THESE REQUIREMENTS THEN BECOME A SECTION OF THE BASIS FOR THE AUDIT OF THE INSTALLATION.

Attachment III
Technical Audit Schedule

Day 1

Audit Start-up Meeting 1/2 day
(Resolve old action items)

Day 2

I. Review Design Process

HFEB-2	4 hours
HFEB-1b	2 hours
RSB-3	1 hour

II. Day 2 Audit Summary 1 hour

Day 3

I. Key Safety Parameters

RBS 1a, 1b, 1c	2 hours
RSB 5, I&CSB-5	2 hours

II. Testing of Man in loop

HFEB 1a	2 hours
HFEB 4c, 4d*	2 hours

III. Test Plan for Validation of Integrated System

HFEB 4a, 4b*	2 hours
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IV. Day 3 Audit Summary 1 hour

Note: (*) implies parallel efforts