GENERAL ELECTRIC

NUCLEAR POWER SYSTEMS DIVISION
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May 22, 1985

United States Nuclear Regulatory Commission
Vendor Program Branch
Washington, DC 20555

Attention: Gary G. Zech, Chief
Vendor Program Branch

Reference: NRC Letter - Docket No. 99900403/84-04 - April 29, 1985

Dear Mr. Zech:

This letter is in response to your April 29, 1985 letter which contained the results of the NRC Inspection of the Nuclear Energy Business Operations facility in San Jose, California, conducted during the week of October 15, 1984. Mr. Bruggeman has requested that I respond to your letter in his behalf.

The NRC Inspection Report identified seven nonconformances. The statement of each nonconformance and our responses are contained in Attachment 1.

Sincerely,

L. S. Bohl, Manager
Quality Assurance & Reliability
Operation
Mail Code 310

LSB:vmw

Attachment

cc: W. H. Bruggeman
J. M. Case
J. J. Fox
G. G. Sherwood

IE:09
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ATTACHMENT 1

Nonconformances and Responses

NONCONFORMANCES

1. Contrary to GE Quality Assurance Topical Report NEDO-11209, Rev. 4 Section 3.12, "Design Change Control," Engineering Operating Procedures (EOP) 40-3.00 "Engineering Computer Programs" (ECPs), does not require that Control Components (responsible engineers for ECPs) define other design documents affected by computer code changes or errors, or coordinate these changes with other responsible engineers whose documents are affected. Further, Section 4.1 of the same procedure (EOP 40-3.00) does not require that the Control Component interface with responsible engineers affected by a computer code error, and assess effects of computer code errors on designs, past and present.

2. Contrary to EOP 40-3.00, "Engineering Computer Programs," the Design Record File (DRF) for the CRNC-04 computer code (No. A00-01619) did not include all of the code testing specified in the Software System Specification.

3. Contrary to EOP 42-6.00, "Independent Design Verification," the verification of calculations described in GE Topical Report NEDE-25518 was not completed until after issuance of the report.

4. Contrary to EOP 42-10.00, "Design Record Files," the DRF for the PANACEA Core Design System (No. 670-0005) did not always identify the originator, reviewer, or date performed.

5. Contrary to Section 3.10 of the QA topical report NEDO-11209-04A, application of the SAP4G07 code was not fully verified in the following areas:

   a. Two options of the beam element (fixed end forces and shear deformation analysis) and one option of the pipe element (the ASME Code analysis) had no verification provided.

   b. One nodal point option (slaved degrees of freedom) and one option of the beam element (released degrees of freedom) had verification for the latest version only. However, an earlier version of the SAP4G07 code (which is a Level 3 program), is still available for use on safety-related designs.

6. Contrary to EOP 42-6.00, the method from which analytical results were obtained in the SAP4G07 computer program verification problems 4.1, 4.2, 5.1, 8.1, and 14 was not referenced, nor were any hand calculations included.

7. Contrary to EOP 40-3.00, "Engineering Computer Programs," users are reporting potential computer code errors verbally to the responsible engineer without the required documentation.

ATTACHMENT 1 (Continued)

RESPONSE TO NONCONFORMANCE 1

In NEDO-11209, Section 3.12, the statement "The responsible engineer is charged with the responsibility for defining all other design documents affecting the change and for resolving and coordinating changes with other engineers whose documents are affected" describes our design change control requirements for product drawings and specifications where Engineering Change Notices (ECNs) are used. Product design changes are controlled in accordance with Section 55 of the Engineering Operating Procedures (EOPs). For Engineering Computer Programs (ECPs) the change control and error control requirements are specified in EOP 40-3.00, "Engineering Computer Programs." EOP 40-3.00 was revised on 12-19-84 to specify additional error control requirements such as classification of ECP error types, improved reporting of ECP errors to user design and development component managers for further evaluation, and recording of user design record files which require evaluation of the impact of identified ECP errors.

The revised EOP 40-3.00, as well as examples of its effective implementation, were reviewed with NRC Inspectors at San Jose during March 4-6, 1985.

RESPONSE TO NONCONFORMANCE 2

As discussed with NRC Inspectors during their March 1985 Inspection at San Jose, hand calculations were not applicable to the computer code changes made in CRNC-04. Therefore, no hand calculations were necessary to assure adequate verification of the change. We do not agree that any nonconformance exists and therefore no corrective or preventive action is necessary.

RESPONSE TO NONCONFORMANCE 3

NEBO had recognized the deficiency and had completed the corrective action (independent design verification) during July 1982, over two years prior to the NRC Inspection. To prevent recurrence of this type of deficiency NEBO has emphasized the requirements of EOP 42-6.00 in Quality Assurance Newsletters and in QA training course documents related to independent design verification.

RESPONSE TO NONCONFORMANCE 4

Design Record File (DRF) entries for the current version of PANACEA will be reviewed to assure that originators and reviewers are adequately identified and that the dates of entries are adequately identified. A record of this review will be included in DRF 670-0005 by June 30, 1985.

To Prevent recurrence of this type of nonconformance, the Manager, Core and Fuel Technology issued a letter (dated October 3, 1984) to all engineers responsible for ECPs to remind them of EOP 42-10.00 requirements for verification calculations. In addition, these EOP requirements are emphasized in QA training course documents related to design record files.

ATTACHMENT 1 (Continued)

RESPONSE TO NONCONFORMANCE 5

Apparently the Inspectors misunderstood the extent and method of independent verification of the SAP4G07 computer code. As discussed with NRC representatives during the March 4-6, 1985 inspection, the SAP4G07 computer program is a fully verified Level 2 computer program. The computer program Design Record Files (DRF) show that the verification of every version of the program was conducted by an independent design review team in accordance with the requirements of EOP 40-7.00, "Design Review" and EOP 42-6.00, "Independent Design Verification" and that the results are formally documented in a comprehensive design review report. Therefore, we consider that the SAP4G07 computer program, including the options referenced in the statement of nonconformance, has been independently verified and has been judged to be adequate by the NEBO design review team. This documented design review fully conforms to the verification requirements of Regulatory Guide 1.64 and NEBO commitments in NEDO-11209.

RESPONSE TO NONCONFORMANCE 6

As stated in our response to Nonconformance 6 above, the SAP4G07 computer program has been fully and independently verified by a NEBO design review team and has been judged to be adequate for its intended purpose. No additional references or hand calculations were considered necessary for adequate verification of SAP4G07. The additional references and hand calculations suggested by the NRC Inspectors during the October 1984 Inspection appear to be a matter of individual or personal preference, rather than a nonconformance.

The verification of SAP4G07 fully conforms with the requirements of EOP 42-6.00, "Independent Design Verification" as well as the requirements of Regulatory Guide 1.64 and our commitment in NEDO-11209.

RESPONSE TO NONCONFORMANCE 7

The NRC Inspector found that one (1) ANSYS computer code user had verbally reported an error to the engineer responsible for the ANSYS computer program. This was evident because the ANSYS responsible engineer had documented the error and the corrective action. This failure to document the error is considered to be an isolated case, however NEBO has taken the following action to improve the communication of error reports.

(1) The Manager of Core and Fuel Technology issued a letter (dated January 18, 1985) to responsible managers emphasizing the importance of communicating error reports, and

(2) EOP 40-3.00 "Engineering Computer Programs," was revised on 12-19-84 to specify additional error control requirements.