Omaha Public Power District
1623 Harney Omaha, Nebraska 68102-2247
402/536-4000

March 30, 1990
LIC-90-0222

Mr. Robert D. Martin
Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

Reference: Docket No. 50-285

Gentlemen:

SUBJECT: Status of Safety Enhancement Program Item 6

The purpose of this letter is to provide the status of Safety Enhancement Program (SEP) Item 6. This item was discussed in a meeting between the NRC and the Omaha Public Power District (OPPD) on January 16, 1990.

The Design Basis Project currently has issued forty-one (41) out of forty-eight (48) design basis documents. The remaining seven (7) are scheduled for issue by April 1, 1990. Issuance of these documents is required before the remaining SEP Item 6 activities can be completed.

SEP Item 6 involves verification that safety systems and other selected systems can perform their intended functions. Significant progress towards completion of the verification task has been made to date. A multi-phase approach was selected to meet the verification requirements. This approach includes design reviews, physical verifications (walkdowns), functional verifications and safety evaluation checks. To date, SEP Item 6 is approximately 50% complete. Details of the activities associated with the design reviews and the physical verifications are discussed in Attachment 1.

The functional verification is in progress for the Design Basis Documents issued. Issuance of the remaining documents is required to complete this effort. Further details on the status of functional verification are also discussed in Attachment 1.

Confirmation of the adequacy of the safety evaluations involves a review of approximately 1200 completed modifications. The first step is an accountability check for safety evaluations which is being performed in conjunction with the creation of the design basis documents. The accountability check involves confirmation that a safety evaluation was done consistent with the

A E01
1/1

procedures that existed at the time the modification was installed. As many modifications impact other systems and potentially involve plant level issues (e.g., pipe stress, high energy line break, etc.) an additional review is planned on completion of all the design basis documents. This effort will involve a screening of the modifications to identify questionable safety evaluations. Evaluations identified as questionable will be reviewed in more detail to determine if an unresolved safety question does exist.

Based on the above, it is requested that Safety Enhancement Program, Item 6 be granted an extension from April 1, 1990 to December 31, 1990 to allow completion of functional verification and the safety evaluation checks. This is a priority I SEP item. A breakdown of the SEP Item 6 activities completed and scheduled is shown in Attachment 2.

If you should have any questions, please contact me.

Sincerely,

W. G. Gates

W. G. Gates
Division Manager
Nuclear Operations

WGG/pjc

Attachments

c: LeBoeuf, Lamb, Leiby & MacRae
T. E. Murley, NRC Director, NRR
S. J. Collins, NRC Director, Reactor Projects, Region IV
F. J. Hebdon, NRC Project Director
A. Bournia, NRC Project Manager
P. H. Harrell, NRC Senior Resident Inspector
Document Control Desk

Attachment 1

SAFETY ENHANCEMENT PROGRAM

Item 6

Implementation of the Design Basis Reconstitution Program is currently being monitored by four Safety Enhancement Program (SEP) commitments. This description addresses Safety Enhancement Program, Item 6 which states:

> *Verify that safety system and other selected systems perform their intended safety functions on completion of design basis documentation.*

To accomplish the objective of this item a multi-phase approach was selected including design review, physical verification, functional verification and a safety evaluation check. The status of each phase is discussed below:

DESIGN REVIEW

Design Basis Documents (DBD's) identify the system design requirements and document the current design configuration that meets these requirements. The design review activities performed during DBD development are summarized as follows:

- USAR Review - The USAR is reviewed to identify design requirements. The plant design is verified to meet these requirements by other design documents. Also, any design statements found in the USAR are verified by other design documents.

- Licensing Commitment Review - Licensing Documents (e.g., Safety Evaluation Reports, NRC generic letters, NRC correspondence) are reviewed to identify design requirements committed to by OPPD or mandated by the NRC. The plant design is verified to meet these commitments by other design documents.

- Drawing Review - The station design drawings are reviewed to verify that the design requirements are met. This includes review of Piping & Instrumentation Diagrams (P&IDs), valve drawings, seismic piping isometrics, equipment/component drawings, wiring diagrams, instrument loop diagrams, electrical elementaries, structural drawings and specifications. This review typically verifies the following:

  - Material of construction
  - Flow and system configuration
  - Maximum system operating pressures and temperatures
  - Equipment size and rating
  - Control circuit logic
  - CQE integrity and electrical channel separation
  - Instrument loop isolation and function
  - Electrical circuit power source

- Calculation Review - Station calculations are reviewed to determine if the required calculations exist which verify that the design requirements are met. Only the assumptions, inputs and results of the calculation are reviewed in detail. This is not a detailed verification of the calculation methodology or the accuracy of the mathematical computation.

- Procedure Review - Station procedures are reviewed to determine the normal and off-normal operation of the station. The procedures are also reviewed to verify that specific design requirements are met during station operation (e.g., manual operation of equipment if instrument air is unavailable).

- Vendor Manual Review - The vendor manuals for equipment are reviewed on a selective basis to verify that the design requirements of the station are met by the installed equipment. The manuals are also reviewed for any design or operation limitations that are imposed by the equipment.

- Modification Reviews - Completed modifications specific to each DBD are reviewed to identify design requirements for incorporation into the DBD. This review includes a verification that a safety evaluation (10 CFR 50.59) has been performed.

- Technical Specification Review - The plant Technical Specifications are reviewed, along with other licensing documents, to determine design requirements. The review verifies that the Technical Specification basis agrees with the USAR and any applicable licensing commitments of the DBD. Design statements found in the Technical Specifications are verified by other design documents. Surveillance requirements identified by the Technical Specifications are verified by a review of the station procedures.

- Contract Specification Review - The contract specifications are reviewed to identify original design requirements. The plant design is verified to meet these requirements by other design documents. The contract specifications are not controlled documents and their completeness has not been verified. When possible, the data extracted from these documents is verified by other sources.

In addition to the above reviews, OPPD databases are searched for other applicable design information (e.g., construction records, test reports, vendor correspondence and certifications). When verification of plant design basis cannot be found, or conflicting information is found in the design documentation, an open item is initiated against the DBD. The resulting DBD from the above efforts provides a review that the station design configuration (as reflected by the available documentation) meets the design requirements necessary for the system to perform its intended safety functions. The effort to develop DBDs is currently being monitored by SEP Item 4 and is scheduled for completion by April 1, 1990.

PHYSICAL VERIFICATION

During the 1988-1989 outage, walkdowns were performed for the P&IDs, Electro-Mechanical (EM) drawings and seismic piping isometrics to verify the installation of piping and equipment. The scope of these walkdowns is described below:

a. The P&ID walkdown verified the following mechanical attributes:

- Identification of mechanical components,
- Sequence of components,
- Tagging of components,
- Evident damage (e.g., leaking flanges).

b. The seismic piping isometric walkdown verified the following mechanical attributes:

- Approximate location of large bore piping,
- Sequence of components and large bore pipe supports,
- Approximate location and type of large bore pipe supports.

c. The EM drawing walkdown verified the mechanical portions of the instrument installation including the following:

- Tubing routing,
- Instrument identification,
- Sequence and arrangement of components,
- Evident damage (e.g., bent of crimped tubing and leaking fittings)

The results of these walkdowns provide assurance that the design drawings used during the development and design verification of the DBD's actually reflect the as-built condition of the plant. Discrepancies between the design drawings and the as-built were identified as observations. Observations received an engineering review to determine their impact on the design basis and assigned a resolution category (e.g., drawing change required, missing tag, maintenance item). Observations have been dispositioned for resolution and are being tracked to closure.

FUNCTIONAL VERIFICATION

Safety systems must be able to fulfill their intended safety functional requirements during and after a design basis accident. Often, the key components necessary to fulfill these functions are not used during normal plant operations. To insure that these components can meet their functional requirements over time, testing must be performed. Currently, many procedures and tests exist which verify these functional requirements. The goal of functional

verification is to review the DBD's for safety related functional requirements and identify procedures or tests that monitor the requirements. Completion of this effort will provide assurance that safety related functional requirements necessary for a system to meet its intended function are being monitored. This effort, however, will not review the adequacy of the procedure or the basis of its acceptance criteria.

To identify the functional requirements, the DBD's need to be completed, reviewed and issued. As of February 1, 1990, 37 DBDs have been issued. The remaining eleven DBDs are scheduled for issue by April 1, 1990. As of March 1, 1990, the functional verification effort was approximately 30% complete. The completion date is currently projected to be August 31, 1990.

SAFETY EVALUATION CHECK

Safety evaluations (10 CRF 50.59) performed to support modifications are to be checked to determine if any unreviewed safety questions exist. This will assure that modifications to the original design have not violated any of the design requirements or the intended functionality of the system. This effort was initiated in October 1988 and was being performed for each DBD as it was completed. Since many modifications impact more than one system and involve various plant level issues (eg., pipe stress, high energy line break, seismic), in some cases, conclusions about the adequacy of the existing safety evaluations could not be made until the remaining design basis documents were issued. Based on the above, this effort was halted until the remaining design basis documents are issued. Once all of the DBD's are issued (April 1, 1990), this effort will resume. The completion date for this activity is currently projected to be December 31, 1990.

Attachment 2

SEP ITEM 6
SCHEDULE OF ACTIVITIES

ACTIVITY	START	FINISH
DESIGN REVIEW (DBD DEVELOPMENT)		
DBD DEVELOPMENT	4-87	4-90
PHYSICAL VERIFICATION		
WALKDOWNS	8-88	3-89
DRAWING UPDATE	3-89	12-90
FUNCTIONAL VERIFICATION		
IDENTIFY FUNCTIONAL REQUIREMENTS	9-89	5-90
VERIFY FUNCTIONAL REQUIREMENTS	11-89	8-90
SAFETY EVALUATION CHECK		
ACCOUNTABILITY CHECK	4-87	4-90
SCREENING	5-90	8-90
DETAILED EVALUATION	6-90	12-90