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NUCLEAR SAFETY REVIEW STAFF OFFICE PROCEDURE

TITLE: ASSESSING POTENTIAL IMPACT OF UNVALIDATED      DATE: 6/8/85  
EMPLOYEE CONCERNS ON THE WATTS BAR NUCLEAR PLANT  
(WBN) STARTUP SCHEDULE

I. PURPOSE

The purpose of this procedure is to establish a Milestone Review Committee (MRC), provide guidance to that committee for assessing the potential impact of unvalidated nuclear safety-related employee expressed concerns upon WBN during the fuel loading and startup process, and provide a methodology for assigning priority to investigations of those concerns to assure that they are properly addressed prior to exceeding the assigned milestone.

II. SCOPE

This procedure encompasses the responsibilities of the NSRS and the MRC as related to assessment and prioritization of unvalidated employee concerns expressed about the design, construction, and operation of WBN as possibly related to nuclear safety.

The scope of the MRC function is to evaluate/assess each expressed potentially nuclear safety-related concern in a cursory manner and no attempt will be made by the MRC to investigate or validate any of the concerns. The results of the MRC evaluations/assessments should not be interpreted as a complete safety evaluation. The evaluations/assessments performed by the MRC will generally be performed using the collective knowledge and experience of the MRC members and readily available consultants and documents.

III. POLICY

It is the responsibility of NSRS to assess the potential impact of unvalidated employee concerns on the major milestones for WBN. These major milestones are defined as follows:

1. Fuel loading.
2. Initial criticality.
3. Power operation above 5 percent.
4. Power ascension tests.
5. Plant operations at 100 percent power.

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6. Other - examples as follows:

- Concerns that if validated would probably not have a significant impact on the safety of operations of the plant.
- Concerns that appear to be related to investigations, reviews, and engineering studies already in progress and with assigned commitment dates.

IV. IMPLEMENTATION

A. Evaluation of Potential Unvalidated Employee Concerns to Determine Those Related to Nuclear Safety at WBN

Using independently developed criteria, the Employee Response Team (ERT) at WBN will evaluate each unvalidated employee expressed concern to identify those that are potentially related to nuclear safety at WBN. As a review of that process the Investigation Group of NSRS will reevaluate each concern to confirm the ERT evaluation and to identify nuclear safety-related concerns missed by the ERT. The criteria that will be used for guidance in the NSRS reevaluation is specified in Appendix A of this procedure. Those concerns determined to be potentially nuclear safety-related (PSR) will be assessed for milestone assignment by the MRC.

B. The Milestone Review Committee (MRC)

1. The NSRS Investigation Group shall form an employee concerns Milestone Review Committee to assess and prioritize the potential impact of those potential nuclear safety-related concerns on the milestones listed in section III above. The MRC shall be comprised of a chairman from the NSRS and at least four other members directly from NSRS or selected for temporary assignment by and with NSRS from the TVA line organizations. The MRC members will provide technical advice to the chairman who will assign the proper milestone for the investigation of the concern. Notes will be recorded for each evaluation. The chairman of the MRC makes the final decision on the milestone. If any member of the MRC disagrees with the decision of the chairman that member can, if desired, prepare a separate opinion which will be filed with the MRC meeting records.
2. The Milestone Review Committee shall meet on a periodic basis (normally once a week) to review the nuclear safety-related employee concern sheets. The location shall be determined at least one working day prior to the meeting.
3. The committee chairman shall maintain committee meeting notes, membership participation, concerns evaluated, etc. (see attachment 1).

C. General Assessment Philosophy

No employee concern shall be dismissed without evaluation regardless of how invalid it may appear to be; experience has proven that seemingly mundane items cited by "lay persons" can have significant safety/schedule impact. Every concern will be examined for milestone impact on its apparent merit (or lack of). The exception to this will be when the concern is a repeat of one that has already been assessed.

In exercising its judgment on these concerns, the Milestone Review Committee should be cautious of the words "all" or "most," etc., when encountered in the concern. This caution should be based on the fact that regardless of what programmatic deficiencies TVA has had in design, construction, procurement, etc., none to date have resulted in the verifiable conclusion that "all" or "most" of any program element, special process, etc., has been found unacceptable. This must be kept in mind when establishing quantitative aspects in assessing impact on a milestone.

Employee concerns will be evaluated considering the quality of the information available in the expressed concern. If there is not enough information, QTC will be contacted to obtain follow-up information. If this information is not available and follow-up is not possible, the MRC may assign a milestone of lesser urgency. This criteria shall not stand alone. Higher priority milestones shall be assigned if a trend of several concerns are found in specific areas.

D. Criteria for Assessment

1. Quantitative Assessment of the Concern

Many concerns will involve questions about one type of item or component (such as hangers). When the concern centers on "one here and one there" and is of a random nature, the quantitative effects on any one system are small and its potential milestone impact will be assessed accordingly. This test is not all inclusive, however, and must be applied in conjunction with 2 and 3 below.

2. The Redundancy Test

There are a few structures, systems, and possibly components wherein a single, though random, problem cannot be considered insignificant even for fuel loading. These structures, systems, etc., are those that have no redundant counterpart. Examples are: the reactor coolant system (primary pressure boundary) and the containment building.

3. Trending to Ensure Endemic Problems Don't Exist on a System or Structure

To ensure that a set of apparently random concerns don't collectively result in a situation where a system or structure is fraught with several potential problems, a trending system shall be implemented. This trending system shall track by plant system number all concerns and their milestone impact. As a consequence, the Milestone Review Committee shall be aware of the total potential impact on any system or structure as a result of a variety of concerns, which if pervasive in nature, may result in their reassessing the milestone impact on a plant system basis. This "Endemic Trending System" shall be created and maintained by NSRS, and copies provided to the Milestone Review Committee on a regular basis.

4. Technical Specification Operability Requirements

Meeting Technical Specification operability requirements is the primary criterion for assignment of a milestone. When considering the other criteria the result is more restrictive than mode operability requirements permit, then the negative milestone impact will be determined by the Milestone Review Committee.

5. Specific Assessment Methodology

More specific milestone criteria to be used by the MRC for guidance is contained in Appendix B of this procedure. Results of the assessment and information considered pertinent to understanding the basis of the MRC conclusion as to the appropriate milestone assigned to each PSR concern will be recorded on attachment 2 of this procedure.

## APPENDIX A

Criteria for Evaluating Employee Concerns to Determine Those That Are Nuclear Safety RelatedA. Critical Systems, Structures, and Components

In general "safety-related items" are referred to as critical systems, structures, and components (CSSC) and are those items that are necessary to ensure:

1. The integrity of the reactor coolant pressure boundary.
2. The capability to shut down the reactor and maintain it in a safe condition.
3. The capability to prevent or mitigate the consequences of an accident which could result in potential offsite exposures comparable to those specified in 10CFR Part 100.

More specifically, items should be considered CSSC if they perform any of the following safety-related functions:

1. Maintains core reactivity control under emergency conditions including those covered by anticipated transients without scram (scram mechanisms).
2. Instruments and controls which are essential for emergency reactor shutdown, containment isolation, reactor core cooling, and containment and reactor heat removal or are otherwise required for preventing significant release of radioactive material to the environment. Instrumentation and controls that perform an essential secondary function should be considered safety related if they are designed primarily to accomplish one of the above functions or where their failure would prevent accomplishing one of the above functions.

This includes those instruments and controls that are designed as safety related and:

- a. Automatically keep the reactor operating within a safe region by shutting down the reactor whenever the limits of the region are approached (reactor trip signal instrumentation).
- b. Initiate actuation of one or more of the engineered safety features in order to prevent or mitigate damage to the core and water coolant system components and ensure containment integrity (engineered safety features activation system instrumentation).
- c. Provide protective interlocks to prevent an operator error which could lead to incidents or events representing limiting plant design cases (permissive and interlock circuits).

## APPENDIX A (Continued)

- d. Indicators and recorders and associated channels which are essential to:
- (1) Perform manual safety functions and to perform post-accident monitoring following a reactor trip due to any condition up to and including the design limiting fault (containment pressure indicators).
  - (2) Maintain the plant in a hot shutdown condition or to proceed to a cold shutdown condition while meeting the limits of the plant's Technical Specification (system pressure monitor).
  - (3) Monitor conditions in the reactor core, reactor coolant systems, main steam and feedwater systems and containment (auxiliary feedwater flow monitor).
3. Provides a barrier for containing reactor coolant within the reactor coolant pressure boundary (reactor coolant piping, valves, and fittings).
  4. Cools the reactor core under emergency conditions (residual core heat removal systems).
  5. Maintains fuel clad integrity (fuel clad, core power monitoring systems).
  6. Provides power, control, logic, indication, and protection to systems or components to enable them to accomplish their safety function (diesel generators, vital ac and dc power).
  7. Supports or houses equipment that performs a safety function or protects that safety-related equipment from potential natural phenomena, equipment failure, and man made hazards (seismic class I containment and structures, fire protection systems).
  8. Maintains specified environment (e.g., temperature, pressure, humidity, radiation) as required in vital areas to maintain equipment operability and personnel access (control room habitability systems).
  9. Supplies cooling water for the purpose of heat removal from the systems and components which provide a safety function (essential component cooling and service water systems).
  10. Contains radioactive waste such that its failure could result in the release of radioactive waste to the offsite environments in violation of criterion A.3 (low-level radioactive waste discharge isolation valves).
  11. Controls fuel storage to prevent inadvertent criticality (fuel storage racks).

## APPENDIX A (Continued)

12. Ensures adequate cooling for irradiated fuel in spent fuel storage (spent fuel cooling system).
13. Minimizes the probability of dropping objects on stored fuel (overhead crane).
14. Maintains primary containment as required by the FSAR to meet General Design Criteria 54, 55, 56, and 57 (containment penetrations and associated isolation and boundary valves).
15. Doors and hatches which serve one or more of the following functions for safety-related equipment and areas: (1) pressure confinement, (2) leakage confinement, (3) missile protection, (4) pipe whip and jet impingement barrier, (5) equipment rupture flood protection, (6) natural flood protection, or (7) fire protection.

**B. Safety-Related Activities**

Activities that may directly or indirectly affect the ability of CSSC to perform their safety-related functions include but are not limited to the following:

1. Design
2. Purchasing
3. Fabrication
4. Handling
5. Shipping
6. Storing
7. Erecting or constructing
8. Cleaning
9. Inspection
10. Testing
11. Operation
12. Maintaining
13. Repairing
14. Modifying
15. Auditing

**C. Commitments**

TVA has committed to design, construct, and operate WBN in accordance with applicable Federal regulations, codes and standards, FSAR, Technical Specifications, and other commitments made to the regulatory agencies.

Any concern expressed by an employee, an interested individual, or a group that relates in a negative manner to the ability of CSSCs to perform their intended function, to safety-related activities, or to a violation or deviation from TVA commitments should be classified as potentially nuclear safety related (PSR) and evaluated by the MRC for milestone applicability.

## APPENDIX B

Milestone Assessment Criteria (Specific)

The MRC will use the following criteria as guidance to determine milestones. These criteria may be used in whole or in part.

A. Subjective Considerations

1. History
2. Engineering judgment
3. Knowledge of existing problems/resolutions
4. Personnel expertise (MRC members)
5. Training and skills
6. Nonrigorous probability of validity (highly unlikely, possible, probable, etc.)
7. Similarity to operating plant
8. Other independent evaluations

B. Safety Importance

1. Fission product inventory
2. Redundancy
3. Technical specification bases

C. Specificity

1. Quality of information

D. Commitments

1. Technical specifications and bases
2. Codes and standards
3. FSAR
4. Program/procedures
5. QA
6. Other commitments
7. Other requirements (no safety impact)

E. Proven Quality

1. Demonstrated operability
2. Testing (pre-op/surveillance/postmaintenance)

F. Industry Experience

1. NRC (violations, IE Information Notices/Bulletins)
2. Industry information





Chairman's Notes: (Pertinent points, persons contacted, documents reviewed)

MRC POTENTIAL MILESTONE IMPACT  
ASSESSMENT EVALUATION

Employee Concern No. \_\_\_\_\_

Description of system, structure, component, item, program or process, etc.,  
affected by the concern, and cognizant organization:

1. Would the subject concern, if found valid, potentially negate the capability of a system, structure, or component in the performance of its safety function as previously evaluated in the FSAR?

\_\_\_ Yes    \_\_\_ No    \_\_\_ Unknown    \_\_\_ N/A

Explanation:

Potential:

Tech. Spec.    \_\_\_ Yes    \_\_\_ No    \_\_\_ Unknown

Violation    T.S. No. \_\_\_\_\_

FSAR Chapter \_\_\_\_\_

2. Would subject concern negate any of the following commitments or requirements known to the MRC?

- a. A design feature specifically required by NRC to be implemented by a required licensing milestone?

- b. A specific commitment made by TVA to NRC, via letter or other means to implement a particular requirement by a required licensing milestone?

\_\_\_ Yes    \_\_\_ No    \_\_\_ Unknown

Subject and reference if known to the MRC:

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