NUCLEAR ENERGY INSTITUTE

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SENIOR VICE PRESIDENT AND
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August 11, 2000

Mr. Samuel J. Collins
Director, Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Stop O-5 E7
Washington, DC 20555-0001

Dear Mr. Collins:

The industry and NRC have been working for some time now to risk-inform the special treatment provisions of Part 50 (Option 2 of the regulatory improvement program). The clearest indication of the viability of this effort is the NRC staff's action on the South Texas Project (STP) exemption request, which is a prototype for the rulemaking approach. However, the success of the STP exemption request, and hence the Option 2 effort, are in question because of NRC staff's continuing expectation for prescriptive licensing requirements for plant equipment that has been determined through risk evaluation to be of low safety significance.

In recent meetings with NEI and STP, NRC staff has indicated an expectation for extensive information on licensee commercial programs for structures, systems and components (SSCs) of low or no safety significance to be included in the licensing basis. This staff expectation derives from the SSC's classification as "safety related," and the prescriptive regulatory treatment this has historically entailed. The emphasis in these discussions is not on a risk-informed, performance-based approach, but rather on the traditional "how to" approach. The fundamental objective of Option 2, for low safety significant SSCs, is to reduce prescriptive requirements on the basis of a robust risk evaluation, continued performance monitoring, and use of commercial nuclear practices. These commercial programs have been successful in maintaining performance of safety-significant, nonsafety-related SSCs under 10 CFR 50.65, without the need for prescriptive program descriptions in the licensing basis. It is ironic that NRC staff desires a higher degree of prescriptiveness for SSCs of low significance than has been the practice for nonsafety-related SSCs of high safety significance.

The industry has developed a commercial program description that we believe adequately addresses the needs of Option 2, and provides the appropriate level of detail. It is enclosed for your information and is similar to the description forwarded to the NRC staff by STP in support of their exemption request. We

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believe that this program is sufficient for a treatment of low safety-significant SSCs when used in conjunction with performance monitoring.

The industry fully supports the Commission's drive to improve regulatory efficiency and effectiveness through the application of risk-informed, performance-based concepts and practices. The industry remains confident that a successful solution can be developed, but we believe your personal attention to these fundamental concerns is necessary. If not solved, this will undermine the extensive regulatory efforts to better focus NRC and industry attention and activities on those matters which have true safety significance. We are hopeful that a timely resolution can be achieved. Please contact me if you desire further information.

Sincerely,

Ralph E. Beedle

Enclosure

c: Mr. Ashok Thadani, NRC
Mr. William T. Cottle, STP Nuclear Operating Company
Mr. David R. Helwig, ComEd

EXAMPLE OF TYPICAL COMMERCIAL, BALANCE-OF-PLANT QUALITY PROGRAM FOR RISK-INFORMED SAFETY CLASS 2, 3 AND 4 STRUCTURES, SYSTEMS AND COMPONENTS

Organizational Functions

Accountability, Responsibility and Organization

The general authorities, responsibilities and accountabilities for personnel engaged in power plant activities shall be established. To the extent necessary, specific responsibilities shall be established to assure the accomplishment of company, and plant goals and performance criteria.

Goals and performance criteria shall be established commensurate with the importance of the service, structure, system, component, process or function. Personnel shall be aware of their responsibilities for assuring that goals and performance criteria are met, and for recommending changes to assure the accomplishment of company and site goals and performance criteria.

Performance Expectations for Personnel

Performance expectations and standards shall be defined early in a process. These expectations shall be accomplished by satisfying performance criteria, supported by education, experience, supervision, training, instructions, procedures, policies, and other methods as deemed appropriate. Personnel are responsible for performing their activities consistent with these expectations and established company and industry standards, where appropriate. When applicable, personnel shall propose recommendations to refine work process to achieve expectations and resolve deficiencies.

Work activities, plans and procedures shall be based on input from appropriate levels of the work force using, when appropriate cross-functional teams to assess, prepare, install and test modification packages or new designs. The varying requirements of associated technical disciplines and work activities shall take into account personnel safety, work environment, and worker proficiency (education, training and experience). The completion of work activities shall be monitored, and work schedules and logic adjusted, to achieve power production goals.

Process Control

Identification of Required Processes

Work processes and functions that affect the safety significant functions and their attributes, regulatory requirements, and power production activities shall be identified.

Procedures and Instructions

Work activities shall be performed under controlled conditions defined by work procedures or instructions at a level of detail commensurate with the complexity, the proficiency of the worker, and personnel safety, taking into account education, training and experience. Controls shall include the provision to allow personnel to stop the process, and through the corrective and preventative action programs, change the controls, or processes, in order to satisfy the performance criteria and achieve the power production goals. Work procedures and instructions shall provide for consistency in the implementation of the work to provide adequate confidence of meeting the performance criteria, or if performance criteria are impractical, the design specification. The need for written and approved procedures shall be determined based upon complexity, importance to the safety significant functions and attributes, power production goals, and personnel safety.

The configuration control process shall provide reasonable, commercial level, assurance that the as-built and as-operated plant correctly reflects the as-designed assumptions and configurations within the tolerances allowed by the technical parameters defined in the design record file.

Identification of Performance Criteria

Specific performance criteria shall be determined early in the process. Work instructions and procedures shall indicate specific performance criteria commensurate with the importance of the activity. The criteria shall be based on industry codes or standards, specific work procedures, company and unit goals, or instructions and, where applicable, shall incorporate appropriate tolerances.

Assessments

Management is responsible for overseeing the assessment program.

A program for assessments, including self-assessments, shall be established and implemented to provide adequate assurance that the performance criteria are being achieved and are effective. The type, frequency and degree of specificity of assessments shall be determined by the importance to the safety significant

functions and attributes and the performance history of structures, systems, components, or the work activity being evaluated.

Assessments may be in the form of reviews, monitoring, tests, surveillances, inspections, audits or examinations, as appropriate. These assessments shall be performed by line organizations or personnel, by management or by independent internal or external organizations or groups. The importance to the safety-significant function, the power production function, performance history, and personnel safety shall determine the degree of management, and if warranted, independent managerial and technical oversight. Personnel performing assessments shall be qualified through training, work experience, or certification.

Assessments of suppliers, including external support organizations, and manufacturers shall be performed at frequencies determined by procurement requirements, the suppliers performance history, or the performance history of the product. These suppliers' assessments shall assure that the products and services are being undertaken in accordance with a quality plan that will satisfy the requirements of procurement specifications and orders.

Corrective and Preventative Action

Measures shall be established to monitor plant performance and take appropriate action to resolve anticipated deviations or deficiencies that could impact the safety significant functions and attributes, power production goals or personnel safety.

Measures shall be established to assure that deviations from the prescribed performance criteria are identified and communicated to the appropriate levels of management, in a timely manner. Controls and processes shall be available to stop work while the appropriate level of management resolves a deviation or concern. Satisfactory accomplishment of corrective actions shall be confirmed.

Evaluation of Deviations

Documented deviations from the performance criteria or, where performance criteria are impractical, design specifications shall be evaluated commensurate with the importance to the safety significant functions and attributes, the power production goals, and personnel safety. This evaluation should consider the cause of the deviation, the significance and extent of the defect or deficiency in the work activity, with input from the appropriate personnel associated with the activity in which the deviation was identified. For deviations with personnel safety implications, management shall review the results of the evaluations and actions shall be taken and documented to minimize the potential of recurrence.

Resolution of Deviations

Documented deviations shall be resolved by the responsible organizations to an extent, and in a manner, that is consistent with the importance of the structure, system, component or activity. Activities associated with correcting deviations shall continue until the performance criteria have been satisfied, or until appropriate levels of management justify and authorize changes to the original performance criteria.

Examples of Typical Program Elements in a Commercial Control Program

Introduction

Many plants do not have a specific procedure of program labeled "commercial quality program." Rather, such programs and procedures are disseminated in numerous plant programs and procedures. When combined together, as a whole, these program elements assure that the proposed commercial treatment of SSCs provide reasonable assurance that the RISC-2 and RISC-3 required (safety and regulatory) functions will be satisfied. . These programs are currently in place, and provide an effective means of addressing the special treatment controls for RISC-2 and RISC-3 SSCs. In many instances, such programs and procedures are a subset of the more formal 10 CFR 50, Appendix B quality programs

The following element summaries are examples of the type of programs and procedures that are included in a licensee's work control program for balance-of-plant equipment.

I. Monitoring and Assessment Program

Monitors structures systems and components to provide reasonable assurance that the safety-significant, power production, and required regulatory functions will be satisfied. It provides input into the facility assessment program. An element of the general monitoring program is the monitoring required by the maintenance rule, 10 CFR 50.65.

Assessments are implemented to provide adequate assurance that the performance criteria are being achieved and are effective. The type, frequency and degree of specificity of assessments are determined by the importance to the safety functions and the performance history of structures, systems, components, or the work activity being evaluated.

Assessments may be in the form of reviews, monitoring, tests, surveillances,

inspections, audits or examinations, as appropriate. These assessments are performed by line organizations or personnel, by management, or by independent internal or external organizations or groups. The importance to the safety function and performance history determines the degree of management and technical oversight. Personnel performing assessments are qualified through training, work experience, or certification.

II. Corrective Action Program

Establishes the measures to be taken to assure the conditions adverse to quality (e.g., failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances) are promptly corrected. For conditions adverse to quality, this program establishes measures to provide reasonable assurance that the cause of the condition is determined, and that corrective action is taken in a timely and accurate manner consistent with safety significance and power production requirements. The program provides for the resolution of overdue corrective action through escalation to higher levels of management, and for the trending of deviating conditions.

III. Maintenance Program

Incorporates the requirements to support 10 CFR 50.65 and includes the preventative maintenance (PM) and the predictive maintenance program.

A. Maintenance Rule Program

Implements the Maintenance Rule at the station, including SSC scoping and monitoring, classifying SSC performance in accordance with criteria and goals, ensuring proper corrective actions when performance criteria are not met, and periodically evaluating overall program performance.

Note: The maintenance rule program provides a basis for the performance monitoring program for RISC-3 SSCs

B. The Preventive Maintenance (PM)

Program provides for the identification, scheduling, and assessment of routine preventive maintenance activities on RISC-4, RISC-3 and where appropriate, RISC-2 SSCs. The PM program focuses on maintenance activities that assure SSCs will continue to satisfy the designed functions. As appropriate, PM activities encompass important design elements, historical performance, and established maintenance practices. PM activities include, where appropriate, routine maintenance checks, inspections, replacements, tests, adjustments, and calibrations. The program is adjusted, as necessary, based on the results of the PM program. If the deficiency cannot be corrected under the PM activity, then action is taken in accordance with

the Corrective Action Program until the deficiency is resolved. When necessary, post-maintenance testing is performed prior to returning equipment to service.

C. Predictive Maintenance Program

The Predictive Maintenance Program provides for periodic, proactive testing of selected SSCs to identify a decline in performance or in material condition. Predictive maintenance activities assist in assuring that SSCs continue to perform reliably and provide additional confidence that the SSC design functional requirements will be available when required. Activities include: periodic lube oil analyses on large motors and pumps; vibration analyses of rotating equipment; thermographic analyses of both mechanical and electrical SSCs to identify improper temperature conditions or electrical hot spots; acoustic analysis for valve leak-by or SSC leakage; and motor potential diagnostic testing. Deficiencies identified through the Predictive Maintenance Program are resolved through the Corrective Action Program.

IV Design Change Program

Establishes the process for managing the preparation, implementation, and where necessary, the licensing of design changes. It defines the controls necessary to ensure safe implementation of station design changes, and provides reasonable, commercial level assurance that changes to the facility are implemented consistent with the information contained in the plant's design record file. As necessary and appropriate, post-modification testing is performed to determine or verify the capability of a modified SSC to meet specified functional design requirements and design bases before being placed in service.

The design change process for RISC-2 SSCs includes a provision for assessing and managing the change in risk from equipment design changes.

V Procurement Program

Procurement of SSCs is controlled by administrative procedures that implement quality assurance program elements for procurement and materials management consistent with safety and power generation. As necessary, and consistent with the safety-significance or power production requirement, the program includes: vendor surveillance audits and maintenance of approved vendor lists, receipt inspection, materials verification activities, special handling and storage procedures, that are consistent with the information in the plant's design record file.

If spare parts are not available from the original equipment manufacturer, an engineering evaluation is performed to determine the applicability of alternative

suppliers. The evaluation assesses the functional differences associated with fit, form or function of the equipment or service being supplied.

VI Procedure Program

This program applies to technical and administrative procedures and includes the necessary processes to maintain procedure quality. The program further establishes the processes for 1) the development, review, and approval of new procedures, procedure revisions, procedure changes and procedure deletions, 2) review and approval of vendor procedures, and 3) performance of periodic procedure reviews. The program is designed to assure consistency in the development of new procedures, and in the review and approval of procedure changes.

VII PRA Update Program

This program incorporates a feedback process to update the PRA on frequency determined by circumstances, but not to exceed 36 months. Where appropriate and necessary, the update incorporates applicable "state-of-the-art" changes relative to PRA technology, equipment performance, operating experience data, as well as plant design changes that would affect the PRA and have been implemented since the last update.

VIII Work Control

This program provides the process for identifying, controlling, and documenting work activities, including implementing design changes, at the station. The program ensures that the processing of work requests and work order tasks supports the completion of work in a safe, timely and efficient manner such that safe and reliable plant operation is optimized.

Planned work instructions are generated, if necessary, based on the importance of the activity. Operational and administrative controls govern the status of SSCs as work progresses. Documentation, review, and retention requirements of the completed work activities are governed by administrative procedures and described, as necessary, in the work instructions.

IX Work Planning and Scheduling

This program provides the requirements and guidelines for planning and scheduling maintenance and other work activities to optimize plant operational safety, reliability and availability. The program addresses the planning and scheduling of the following activities:

Corrective, preventive, and pre-determined (i.e., planned or repetitive) maintenance

On-line maintenance

Periodic testing

Installation of design change packages

X Configuration Control Program

Manages and controls changes (procedural and equipment) to the facility to assure the plant configuration and practices correctly reflect the design record file and licensing documentation.

The program includes the §50.59 change control process and incorporates the procedure for implementing changes associated with safety-significant "beyond design basis" changes.

XI Examples of Other Programs

Other programs that also promote reasonable assurance and reliability that specific RISC-2 and RISC-3 SSCs will adequately perform their function(s) include:

- Secondary Piping Inspection and Replacement Program (includes condensate and feedwater systems, etc. subject to flow-assisted corrosion)
- Diesel Generator Reliability Program (includes AAC diesel)
- Technical Requirements Manual (Fire Protection/Appendix R equipment, AAC equipment, snubbers, etc.)