



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

October 9, 1996

Mr. C. W. Mueller  
President and Chief Executive Officer  
Union Electric Company  
P. O. Box 149  
St. Louis, MO 63166

SUBJECT: REQUEST FOR INFORMATION PURSUANT TO 10 CFR 50.54(f) REGARDING  
ADEQUACY AND AVAILABILITY OF DESIGN BASES INFORMATION

Dear Mr. Mueller:

The purpose of this letter is to require information that will provide the U.S. Nuclear Regulatory Commission (NRC) added confidence and assurance that your plant(s) are operated and maintained within the design bases and any deviations are reconciled in a timely manner.

Background

In the mid- to late 1980s, NRC safety system functional inspections (SSFIs) and safety systems outage modifications inspections (SSOMIs) identified concerns that design bases information was not being properly maintained and plant modifications were being made without the licensee having an understanding of the plant design bases. The NRC's findings heightened the nuclear industry's awareness of the need to improve the adequacy and availability of design documentation, and many licensees voluntarily initiated extensive efforts to improve the design bases information for their plants.

To assist the industry in performing design bases improvement programs, the Nuclear Management and Resources Council (NUMARC)<sup>1</sup> developed a guidance document, NUMARC 90-12, "Design Basis Program Guidelines." These guidelines were intended to provide a standard framework for licensee programs to improve plant design bases information.<sup>2</sup> The NRC staff reviewed the guidelines and provided comments to NUMARC in November 1990. In emphasizing the importance of validating the facility against current design information, the staff

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<sup>1</sup>NUMARC was consolidated into the Nuclear Energy Institute (NEI) on March 23, 1994.

<sup>2</sup>As discussed in NUMARC 90-12, these programs or efforts would emphasize collation of design basis information and the supporting design information, not the identification or re-creation of the licensing basis for a plant or the regeneration of missing analyses and calculations.

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stated that the goal of any program should be to establish confidence that the existing facility is in accordance with the current design documents and that any deviations will be reconciled. The staff concluded that the NUMARC guidelines would provide worthwhile insights to utilities undertaking design reconstitution programs and that the guidelines appeared to provide sufficient flexibility for licensees to structure their programs to respond most efficiently to any unique needs and circumstances of a particular licensee. The staff requested NUMARC to consider making design reconstitution a formal NUMARC initiative and commented that design documents that support technical specification values and that are necessary to support operations or to respond to events should be regenerated if missing. NUMARC subsequently concluded that a formal initiative was not necessary because most of its members were already conducting or evaluating the need to conduct design reconstitution programs, and agreed to forward the guidelines, with the NRC's comments, to its members for use on a voluntary basis.

To provide more information to the industry on this topic and to provide an independent view of the design control issue, the staff conducted a survey of six utilities and one nuclear steam supply system vendor to determine the status of design control problems and the strengths and weaknesses of the sample utility programs. The results were published in February 1991 in NUREG-1397, "An Assessment of Design Control Practices and Design Reconstitution Programs in the Nuclear Industry." The survey observations were as follows:

- The need for a design documentation reconstitution program was directly proportional to the age of the plant.
- The general intent of the program should be to provide a central location for design bases information, with emphasis on the design intent (the "why" of the design).
- The design bases documents should be a top-level directory that defines the current plant configuration.
- Reestablishment of design bases without reconstitution of the supporting design documents, as necessary, may not provide a sufficient level of information for future modifications or current plant operation, or to quickly respond to operating events.
- Minor changes to the design should be tracked to support the conclusion that the changes in the aggregate do not affect the validity of existing calculations and the ability of a system to perform its design functions.

Some common weaknesses of licensee programs identified during the survey included the following:

- Design reconstitution programs had not identified in advance the documents that are necessary to demonstrate that a structure, a system, or a component will function properly.
- The process for regenerating missing design documentation was not always proceduralized so that it could be handled in a systematic manner.
- Validation of the content of specific output documentation was not always thoroughly carried out.

In late 1991, the NRC staff evaluated whether rulemaking, guidance, or a policy statement was needed to address the issue of licensees retaining accurate design bases information. It concluded that the existing regulatory requirements for design control were adequate; however, it determined that the publication of a policy statement addressing design bases information and publication of a generic letter requesting licensees to describe their design reconstitution programs would be beneficial. Additionally, the staff stated its intention to continue to evaluate design control adequacy during its performance-based inspections such as SSFIs and SSOMIs. The staff also expected that the enforcement policy guidance to provide greater opportunities for enforcement discretion<sup>3</sup> would encourage voluntary identification of past design, engineering, and installation issues by licensees. With the Commission's approval, the staff proceeded with this approach.

In August 1992, the NRC issued a Commission policy statement, "Availability and Adequacy of Design Bases Information at Nuclear Power Plants" (57 FR 35455) (Attachment 1). This policy statement stressed the importance of maintaining current and accessible design documentation to ensure that (1) plant physical and functional characteristics are maintained and consistent with design bases, (2) systems, structures, and components can perform their intended functions, and (3) the plant is operated in a manner consistent with the design bases. In the policy statement, the Commission recommended that all power reactor licensees assess the accessibility and adequacy of their design bases information and that they be able to show that there is sufficient documentation to conclude that the current facility configuration is consistent with the design bases. The policy statement outlined the additional actions the NRC would take to keep apprised of the industry's design reconstitution activities previously discussed.

Following review by the Committee To Review Generic Requirements (CRGR) and the Commission, a draft generic letter was issued for public comment on March 24, 1993. The proposed generic letter requested licensees, on a

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<sup>3</sup>NRC would refrain from imposing civil penalties for violations up to Severity Level II if the violations were identified and corrected as a result of systematic voluntary initiatives.

voluntary basis, to submit information and schedules for any design bases programs completed, planned, or being conducted, or a rationale for not implementing such a program. All but one of the commenters concluded that the generic letter was unnecessary and unwarranted. NUMARC responded that it believed the NRC's request for descriptions, schedules, and dates would have a negative impact on ongoing design efforts and that NRC's focus on schedules would undermine the licensees' ability to manage the activities. In SECY-93-292, "Generic Letter on the Availability and Adequacy of Design Bases Information," dated October 21, 1993, the staff recommended that the generic letter not be issued. The staff stated that publication of the policy statement and the proposed generic letter conveyed to the industry the Commission's concern and that publication of the generic letter would not further licensees' awareness of the importance of the activities. The staff proposed to continue performing design-related inspections and to gather information and insights as to how well the licensees' design-related programs were being implemented. The Commission issued a staff requirements memorandum that agreed with the staff's proposal.

In response to the findings relating to the regulatory burden of team inspections identified in the 1991 Regulatory Impact Survey, during the past several years the staff has reduced its effort on specific, resource-intensive, design-related team inspections, and followed the issue of accurate and accessible design documentation at plants principally as an element of inspection and followup of operations-related activities. The issuance of the NUMARC guidelines and ongoing industry efforts to improve and maintain design bases information also contributed to this decision.

#### Current Problem

Over the past several months, NRC's findings during inspections and reviews have identified broad programmatic weaknesses that have resulted in design and configuration deficiencies at some plants, which could impact the operability of required equipment, raise unreviewed safety questions, or indicate discrepancies between the plant's updated final safety analysis report (UFSAR) and the as-built or as-modified plant or plant operating procedures. These inspections and reviews have also highlighted numerous instances in which timely and complete implementation of corrective action for known degraded and nonconforming conditions and for past violations of NRC requirements has not been evident. Overall, the NRC staff has found that some licensees have failed to (1) appropriately maintain or adhere to plant design bases,<sup>4</sup>

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<sup>4</sup>As described in 10 CFR 50.2, design bases is defined as, "Design bases mean that information which identifies the specific functions to be performed by a structure, system, or component of a facility, and the specific values or ranges of values chosen for controlling parameters as reference bounds for design..." The design bases of a facility, as so defined, is a subset of the licensing basis and is contained in the FSAR. Information developed to implement the design bases is contained in other documents, some of which are docketed and some of which are retained by the licensee.



(2) appropriately maintain or adhere to the plant licensing basis,<sup>5</sup>  
(3) comply with the terms and conditions of licenses and NRC regulations, and  
(4) assure that UFSARs<sup>6</sup> properly reflect the facilities. Attachment 2 provides examples of some of the deficiencies recently identified by the staff. As a consequence of this new information, the NRC believes that the industry's voluntary efforts to improve and maintain design bases information for their plants, consistent with NUMARC 90-12, the staff's comments on the industry guidelines, and the Commission policy statement, have not been effective in all cases.

The magnitude and scope of the problems that the NRC staff has identified raise concerns about the presence of similar design, configuration, and operability problems and the effectiveness of quality assurance programs at other plants. Of particular concern is whether licensee programs to maintain configuration control at plants licensed to operate are sufficient to demonstrate that plant physical and functional characteristics are consistent with and are being maintained in accordance with their design bases. The extent of the licensees' failures to maintain control and to identify and correct the failures in a timely manner is of concern because of the potential impact on public health and safety should safety systems not respond to challenges from off-normal and accident conditions.

It is emphasized that the NRC's position has been, and continues to be, that it is the responsibility of individual licensees to know their licensing basis, to have appropriate documentation that defines their design bases, and to have procedures for performing the necessary assessments of plant or procedure changes required by NRC regulations. Attachments 3 and 4 are a recent exchange of correspondence between J. Colvin, NEI, and Chairman S. Jackson, NRC, regarding these subjects.

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<sup>5</sup>The licensing basis for a plant originally consists of that set of information upon which the Commission, in issuing an initial operating license, based its comprehensive determination that the design, construction, and proposed operation of the facility satisfied the Commission's requirements and provided reasonable assurance of adequate protection to public health and safety and common defense and security. The licensing basis evolves and is modified throughout a plant's licensing term as a result of the Commission's continuing regulatory activities, as well as the activities of the licensee.

<sup>6</sup>The FSAR is required to be included in, and is one portion of, an application for an operating license (OL) for a production or utilization facility. 10 CFR 50.34(b) describes the information which must be included in an FSAR. The FSAR is the principal document upon which the Commission bases a decision to issue an OL and is, as such, part of the licensing basis of a facility. It is also a basic document used by NRC inspectors to determine whether the facility has been constructed and is operating within the license conditions.

Action

The NRC has concluded that it requires information that can be used to verify compliance with the terms and conditions of your license(s) and NRC regulations, and that the plant UFSAR(s) properly describe the facilities, as well as to determine if other inspection activities<sup>7</sup> or enforcement action<sup>8</sup> should be taken. Therefore, you are required, pursuant to Section 182(a) of the Atomic Energy Act of 1954, as amended, and 10 CFR 50.54(f), to submit a response to this letter within 120 days of its receipt. Your response must be written and signed under oath or affirmation.

Please submit the original copy of your response to the NRC Document Control Desk, and send a copy to the Director, Office of Nuclear Reactor Regulation and to the appropriate regional administrator. The following information is required for each licensed unit:

- (a) Description of engineering design and configuration control processes, including those that implement 10 CFR 50.59, 10 CFR 50.71(e), and Appendix B to 10 CFR Part 50;
- (b) Rationale for concluding that design bases requirements are translated into operating, maintenance, and testing procedures;
- (c) Rationale for concluding that system, structure, and component configuration and performance are consistent with the design bases;
- (d) Processes for identification of problems and implementation of corrective actions, including actions to determine the extent of problems, action to prevent recurrence, and reporting to NRC; and

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<sup>7</sup>A number of design bases inspections are being planned, and your response will be used in the planning process.

<sup>8</sup>Section VII.B.3 of the NRC Enforcement Policy addresses how old design issues involving past problems in engineering, design, or installation are to be handled from an enforcement standpoint. In a related matter, the Commission recently approved changes that would modify this policy to encourage licensees to undertake voluntary initiatives to identify and correct FSAR noncompliances by (1) the exercise of discretion to refrain from issuing civil penalties for a two-year period where a licensee undertakes a voluntary initiative in this area and (2) the exercise of discretion to escalate the amount of civil penalties for violations associated with departures from the FSAR identified by the NRC subsequent to the two-year voluntary initiative period.

- (e) The overall effectiveness of your current processes and programs in concluding that the configuration of your plant(s) is consistent with the design bases.

In responding to items (a) through (e), indicate whether you have undertaken any design review or reconstitution programs, and if not, a rationale for not implementing such a program. If design review or reconstitution programs have been completed or are being conducted, provide a description of the review programs, including identification of the systems, structures, and components (SSCs), and plant-level design attributes (e.g., seismic, high-energy line break, moderate-energy line break). The description should include how the program ensures the correctness and accessibility of the design bases information for your plant and that the design bases remain current. If the program is being conducted but has not been completed, provide an implementation schedule for SSCs and plant-level design attribute reviews, the expected completion date, and method of SSC prioritization used for the review.

This request is covered by the Office of Management and Budget (OMB) clearance number 3150-0011, which expires July 31, 1997. The reporting burden for this collection of information is estimated to average 400 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0011), Office of Management and Budget, Washington, D.C. 20503. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

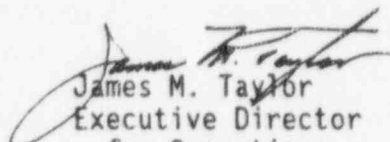
In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and your response will be placed in the NRC Public Document Room (PDR), the Gelman Building, 2120 L Street, N.W., Washington, DC, and in the local public document room(s) for your facility or facilities.

Mr. C. W. Mueller

- 8 -

If you have any questions about this matter, please contact the staff members listed below, or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

Sincerely,

  
James M. Taylor  
Executive Director  
for Operations

Docket No. STN 50-483

Attachments:

1. Policy Statement on Availability and Adequacy of Design Bases Information at Nuclear Power Plants
2. Background Information on Recently Identified Problems
3. Letter from J. Colvin (NEI) to Chairman S. Jackson (NRC) dated 8/2/96
4. Letter from Chairman S. Jackson (NRC) to J. Colvin (NEI) dated 8/14/96

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# Rules and Regulations

Federal Register

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Monday, August 10, 1992

This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510.

The Code of Federal Regulations is sold by the Superintendent of Documents. Prices of new books are listed in the first FEDERAL REGISTER issue of each week.

## NUCLEAR REGULATORY COMMISSION

### 10 CFR Part 50

#### Availability and Adequacy of Design Bases Information at Nuclear Power Plants; Policy Statement

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Policy statement.

**SUMMARY:** The Nuclear Regulatory Commission is issuing this policy statement on availability and adequacy of design information at nuclear power plants. This policy statement describes the Commission's expectations and future actions with regard to the availability of design information and emphasizes the Commission's view that facilities should not be modified without a clear understanding of the applicable engineering design bases.

**EFFECTIVE DATE:** August 10, 1992.

#### FOR FURTHER INFORMATION CONTACT:

Eugene V. Imbro, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 504-2967.

**SUPPLEMENTARY INFORMATION:** NRC inspection findings have demonstrated that some licensees have not adequately maintained their design bases information as required by NRC regulations. Both the problems identified during the NRC inspections and those identified by licensees have prompted most power reactor licensees to initiate, over the past several years, design bases reconstitution programs. To implement a reconstitution program, licensees seek to identify missing design documentation and to selectively regenerate missing documentation as required.

In 1989, Nuclear Utilities Management and Resources Council, Inc., (NUMARC) began developing their "Design Basis

Program Guidelines." NUMARC 90-12. While developing these guidelines, NUMARC discussed them at several public meetings held with the NRC. The staff has concluded the NUMARC guidelines provide a useful standard framework for implementing design reconstitution programs. The staff also agrees no single approach would enable utilities to best accomplish the reconstitution task. The NUMARC guidance appeared to provide sufficient flexibility for individual utilities to structure their programs to respond most efficiently to their unique needs and circumstances.

The staff sent comments on the guidelines to NUMARC on November 9, 1990. Commission paper SECY-90-365 informed the Commissioners in advance about the staff response to NUMARC.

The staff requested NUMARC consider making the design bases effort a NUMARC initiative. NUMARC concluded they would not pursue a formal initiative, but would forward the guidelines to their members to use on a voluntary basis. Their reason for not pursuing an initiative was that most of their members were already conducting or evaluating the need to conduct design bases reconstitution programs.

The Commission's evaluation of the status of reconstitution programs clearly indicates the licensees' substantial investment in these programs should yield positive safety benefits for a majority of sites. The NRC commends those licensees that are acting to ensure technically adequate and accessible design bases documentation is maintained.

However, the Commission is concerned some situations exist where licensees have not critically examined their design control and configuration management processes to identify requisite measures to ensure the plant is operating within the design bases envelope. Therefore, the Commission is articulating its expectations with regard to design information and elaborating on its planned activities to confirm the integrity of the as-configured plant with respect to the plant design bases.

#### Policy Statement

##### Position

The Commission has concluded that maintaining current and accessible design documentation is important to ensure that (1) the plant physical and

functional characteristics are maintained and are consistent with the design bases as required by NRC regulation, (2) systems, structures, and components can perform their intended functions, and (3) the plant is operated in a manner consistent with the design bases. The Commission believes the regulatory framework already exists to address the need for accessible design bases and control of design information. The availability of current design and licensing bases will also expedite the license renewal process.

The Commission believes, as a result of NRC inspections and licensees' self-assessments, that all power reactor licensees should assess the accessibility and adequacy of their design bases documentation. The results of this self-assessment should form the basis for a licensee's decision whether a design reconstitution program is necessary and the attributes to be included in the program. The Commission recognizes the need for a design reconstitution program to be tailored to meet the unique needs of a particular utility. The structure and content of the design document reconstitution program will be influenced by various factors, such as the utility's organizational structure, the availability or unavailability of design documentation, and the intended users of the documentation. The Commission expects that after completing a reconstitution program, or as a basis for concluding that such a program is unnecessary, the licensee will have current design documents and adequate technical bases to demonstrate that the plant physical and functional characteristics are consistent with the design basis, the systems, structures, and components can perform their intended functions and the plant is being operated in a manner consistent with the design bases.

NUMARC has developed guidance for the conduct of design bases reconstitution programs. The guidance outlines a framework to organize and collate nuclear power plant design bases information. This information provides the rationale for the design bases consistent with the definition of design bases contained in 10 CFR 50.2. NUMARC 90-12, "Design Basis Program Guidelines," was issued in October 1990 for voluntary use by NUMARC member organizations as a reference point from which licensees would review their

existing or planned efforts to collate supporting design information. The Commission believes NUMARC's approach provides a useful framework and worthwhile insights to those utilities undertaking design basis programs.

The Commission believes a licensee should be able to show that it has sufficient documentation, including calculations or pre-operational, startup or surveillance test data to conclude the current facility configuration is consistent with its design bases. The Commission further believes the design bases must be understood and documented to support operability determinations and 10 CFR 50.59 evaluations that may need to be made quickly in responding to plant events. The design bases related information should be retrievable within a reasonable period of time, however, it is not necessary for all design basis documentation to be organized in one place. The information used solely to support the development of a modification package would not need to be able to be retrieved as expeditiously as information needed to support an operability determination.

In the event the design bases information is found technically inadequate or not accessible, licensees should consider whether remedial action is warranted. A methodology should be developed and implemented to ensure licensee resources are focused on design information regeneration in a timeframe commensurate with the safety significance of the missing or erroneous information.

The Commission also emphasizes it is very important that modifications to a facility be made after a thorough review has been conducted and an understanding of the applicable underlying design bases has been gained in order to ensure appropriate design margins are preserved.

#### *Future Actions*

The Commission will continue to inspect routinely the adequacy of design control program effectiveness. The Commission concludes that ensuring the design bases and configuration of a facility are well understood and controlled in plant documents will also ensure that those parts of the current licensing bases of most safety significance are understood and controlled. Other aspects of the current licensing bases, such as emergency preparedness and security plans, should also be appropriately examined to

ensure their validity for the life of the facility, including any renewal period.

In order to ensure the Commission is apprised of industry's activities, the NRC will take the following actions.

(1) The staff will issue a generic letter requesting all licensees to describe the programs that are in place to ensure design information is correct, accessible, and maintained current. Those licensees that are not implementing a design reconstitution program will be requested to provide their rationale for not doing so. If a reconstitution program is under way, the schedule for implementation and completion will be requested.

(2) The staff will prioritize NRC inspections of licensee's management of design and configuration using SSFI-type techniques based upon responses to the generic letter and other plant specific information known to the NRC. Additional staff guidance will be developed, where needed, for the design bases aspects of these inspections.

(3) The NRC systematic assessment of licensee performance (SALP) process will be modified to explicitly address assessment of licensee programs to control design bases information that reflect NRC inspection activity in this area and assure consistent evaluations.

(4) The staff will continue to encourage self-identification of design bases issues through application of the provisions of the Commission's enforcement policy. The staff will, however, pursue enforcement actions for engineering deficiencies whose root cause lies in the inadequacy or unavailability of design bases information and which are identified during NRC inspections.

#### **Paperwork Reduction Act Statement**

This final policy statement does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget approval number 3150-0011.

Dated at Rockville, Maryland, this 4th day of August, 1992.

For the Nuclear Regulatory Commission.

Samuel J. Chilk.

Secretary of the Commission.

[FR Doc. 92-18895 Filed 8-7-92; 8:45 AM]

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## **DEPARTMENT OF THE TREASURY**

### **Office of Thrift Supervision**

#### **12 CFR Part 584**

[92-195]

HIN 1550-AA38

### **Registration, Examination and Reports; Statements, Applications, Reports and Notices To Be Filed**

**AGENCY:** Office of Thrift Supervision, Treasury.

**ACTION:** Final rule.

**SUMMARY:** The Office of Thrift Supervision (OTS) is hereby amending its regulations pertaining to holding company reporting requirements. In updating existing forms to reflect changes necessitated by the Financial Institutions Reform, Recovery, and Enforcement Act of 1989, the OTS has combined several forms to streamline the reporting process and ease the regulatory burden on savings and loan holding companies. In particular, the reporting requirements set forth in Forms H-(b)3, H-(b)4, H-(b)5 and H-(b)10 Registration Statements are now contained in one body of instructions for all Registrants, the H-(b)10. In addition, the H-(b)11 Annual Report and the H-(b)12 Current Report have been merged into one set of instructions requiring an annual filing with quarterly updates informing the OTS of any changes. The H-(f) Dividend Notification has been rescinded, since the requirements contained in the Capital Distributions regulation are sufficient for the OTS's monitoring and supervision purposes.

**EFFECTIVE DATE:** September 9, 1992.

**FOR FURTHER INFORMATION CONTACT:** Michael P. Scott, Program Manager, (202) 906-5748, Supervision Policy, Office of Thrift Supervision, 1700 G Street, NW., Washington, DC 20552.

#### **SUPPLEMENTARY INFORMATION:**

##### **I. Background**

The OTS is today issuing a final rule amending its holding company reporting requirements. This amendment affects the registration, annual, and current reporting requirements.

##### **Registration Statements**

As previously structured, holding companies were required to choose from four separate registration statements. These separate statements were originally deemed necessary to accommodate special types of holding companies (i.e., companies that became savings and loan holding companies as

## BACKGROUND INFORMATION ON RECENTLY IDENTIFIED PROBLEMS

Over the past several months, design and engineering information has been obtained that indicates that design bases at certain plants have not been appropriately maintained or adhered to. Specific examples follow:

### Millstone Units 1, 2, and 3

An NRC inspection team recently found examples in which design bases information and the Updated Final Safety Analysis Report (UFSAR) did not agree with the as-built plant, operational procedures, and maintenance practices. The team found inconsistencies that required analyses, procedure changes, and design changes to resolve. For example, the Millstone Unit 3 operating procedures required isolation for the turbine-driven auxiliary feedwater pump during certain plant conditions, in conflict with technical specification requirements for operability. The team found that certain protective relays at Millstone Unit 3 were not set in accordance with the design bases information. This required re-analyses and resetting of certain relays. Based on the team's findings, the licensee initiated design changes to correct nonconforming conditions between the UFSAR and the as-built plant, including changes to the design of the Millstone Unit 2 reactor protection system to meet the design bases with respect to physical separation of redundant channels and changes to the design of the Millstone Unit 2 (post-loss-of-coolant accident (LOCA)) hydrogen monitors to meet the design bases for single failure vulnerabilities.

### Haddam Neck

An NRC inspection team found examples in which the design bases information and the UFSAR did not agree with the as-built plant, operational procedures, and maintenance practices. The team identified a number of deficiencies in engineering calculations and analyses that were relied upon to ensure the adequacy of the design of key safety systems. Deficiencies were identified in the calculations and analyses supporting the station batteries, emergency diesel generators, containment cooling system, and other key safety systems. In some cases, the inspection findings were resolved by revising the calculations and analyses. In other cases, procedure and design changes were required to resolve the issues. For example, the team identified that the design bases calculations supporting the size of the station batteries were inconsistent with the design bases stated in the FSAR. Field measurements and design modifications were required to resolve this issue.

Other issues were identified by the NRC and the licensee following the issuance of this special team inspection report that led the licensee to enter a refueling outage earlier than originally scheduled. Discrepancies included inadequate configuration management of the containment sump design and as-built conditions; a lack of detailed analysis and technical justification for the reliance on post-accident back pressure inside the containment to assure adequate net positive suction head for the residual heat removal pumps; inadequate inspection and verification of the sump as-built and material



conditions; and the lack of aggressive action in response to generic communications of industry events, which contributed to an inadequate operability determination regarding the sump screen design and mesh size. These issues impacted the operability of the emergency core cooling systems (ECCSs) under certain postulated design basis events.

### Maine Yankee

On January 10, 1996, the NRC issued a Confirmatory Order Suspending Authority for and Limiting Power Operation and Containment Pressure and a Demand for Information to the Maine Yankee Atomic Power Company. The order was based, in part, on the NRC's determination that Maine Yankee did not apply a computer code that was proposed to demonstrate compliance with the ECCS requirements of 10 CFR 50.46 in a manner that conforms to the requirements of 10 CFR Part 50, Appendix K, nor to the conditions specified in the staff's safety evaluation dated January 30, 1989. Specifically, the licensee did not demonstrate that the RELAP5YA code will reliably calculate the peak cladding temperature for all break sizes in the small-break LOCA spectrum for Maine Yankee, nor has the licensee submitted the justification for the code options selected and other justifications and sensitivity studies to satisfy conditions in the staff's safety evaluation.

In addition, the licensee assumed an initial containment pressure of 2.0 psig for calculating peak design-basis accident pressure, even though the plant's technical specifications allow a maximum operating pressure in containment of 3.0 psig. Assuming an initial containment pressure of 3.0 psig results in a calculated peak accident pressure in excess of the containment design pressure described in the UFSAR.

### Refueling Practices Survey

In a survey of licensee refueling practices conducted during the spring of 1996, the NRC identified deficiencies in the management of design bases assumptions. Many plants were found to have aspects of their design bases that were only loosely proceduralized or not proceduralized at all. Typical of this kind of discrepancy was the identification of a lack of procedures for controlling the assumptions regarding hold-up time before beginning fuel transfer. The NRC found a number of instances in which other design bases assumptions were not captured in procedures. In addition, it was necessary for licensees at 12 sites (23 units) to upgrade procedures to directly implement the design bases assumptions. In other cases, the licensee performed engineering analyses, documented pursuant to 10 CFR 50.59, as necessary, to ensure that the planned activities would not exceed design bases assumptions.





NUCLEAR ENERGY INSTITUTE

Joe F. Colvin

August 2, 1996

The Honorable Shirley A. Jackson  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Dear Chairman Jackson:

On July 23, 1996, the Nuclear Strategic Issues Advisory Committee (NSIAC) held a special meeting to discuss industry actions for ensuring the licensing basis of nuclear plants is being maintained consistent with the regulations. The chief nuclear officers of the nuclear utilities approved an initiative to provide additional assurance and confidence that existing programs are adequate to ensure that:

- Licensees are operating their plants in conformance with their licensing basis;
- Licensees are adequately maintaining their licensing basis;
- There are no differences between operating practices and the licensing basis that could result in a significant public health and safety concern; and
- Degraded or non-conforming conditions are captured on tracking systems and resolved in a timely manner.

Under the initiative, each licensee will conduct an assessment of the programs in place to reaffirm that plants are operated in conformance with their licensing basis. The program assessment is accomplished by sampling (1) FSAR information, (2) programs in place for processing changes to procedures and the plant that may impact the FSAR, and (3) changes that may not be governed by licensee programs. Many licensees have already commenced or recently completed similar program assessments.

Differences identified through the sampling process will be evaluated to assess the overall effectiveness and adequacy of programs. Programmatic enhancements will be made if needed. The overall significance of any differences will be characterized to determine if additional sampling is warranted.

Differences that represent degraded or nonconforming conditions will be captured on a tracking system and resolved in a timely manner. Each licensee will notify the NRC of any differences that are subject to reporting requirements per the regulations.

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Attachment 3

The Honorable Shirley A. Jackson  
August 2, 1996  
Page 2

The results of the individual plant assessments will be provided to NEI for compilation in an industry summary report. The summary report will be provided to the NRC for information.

The industry has developed a draft guideline to assist utilities in performing the programmatic assessment. The guideline will be finalized subsequent to resolution of the issues discussed below. Enclosure 1 provides a copy of NEI 96-05 (Draft) Revision D, "Guidelines for Assessing Programs for Maintaining the Licensing Basis," for your information.

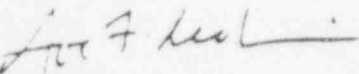
There are a number of related issues that require a mutual agreement between the industry and the NRC before the industry can proceed with the initiative in a consistent manner. These include:

- The legal standing of the Updated Final Safety Analysis Report and the NRC's Safety Evaluation Reports.
- The scope of what constitutes the current licensing basis, and
- The adequacy of NSAC-125 for performing 10 CFR 50.59 safety evaluations.

The industry is committed to completing the initiative within six months of the resolution of these issues. Initial progress in resolving these issues was accomplished during the NRC public meeting also held on July 23, 1996. We appreciate very much the participation of your senior staff in this meeting and the opportunity to discuss these issues. Expedited closure on these fundamental issues is needed to minimize confusion within the NRC regions and the plants and focus our resources on addressing the programmatic issues.

We look forward to a continuing dialogue with the Commission and NRC staff to achieve timely resolution of this matter.

Sincerely,



Joe F. Colvin

Enclosure

c Commissioner Kenneth C. Rogers, NRC  
Commissioner Greta J. Dicus, NRC  
Mr. James M. Taylor, NRC

NEI 96-05 (DRAFT)  
Revision D

NUCLEAR ENERGY INSTITUTE

GUIDELINES FOR ASSESSING PROGRAMS FOR  
MAINTAINING THE LICENSING BASIS

JULY 25, 1996

## 1.0 INTRODUCTION

Licensees have implemented various programs/processes over the period of their licenses for ensuring that the licensing basis is known, is maintained current and is accurately described in the FSAR and associated referenced documents. The NRC, through a review described in SECY-94-066, determined that licensees were adequately maintaining the licensing basis of their facilities. As a result of events that have occurred over the last several months, the NRC has increased attention on licensee compliance with the plant's licensing basis. Differences can occur due to problems in those processes/programs intended to effect changes in the license basis, missing programmatic controls to translate changed operational activities into the licensing basis, or a lack of awareness of licensing basis features.

Licensees employ various programmatic mechanisms for identifying, evaluating and/or processing changes in plant activities that could affect the licensing basis or that are intended to make changes to the licensing basis. These include:

- Final Safety Analysis Report (FSAR) updates per 10 CFR 50.71(e)
- Safety Evaluations per 10 CFR 50.59
- Changes to Quality Assurance, Security and Emergency Plans per 10 CFR 50.54
- License amendments per 10 CFR 50.90
- ASME Code relief requests per 10 CFR 50.55a
- Procedure changes (not subject to 50.59)
- Design changes (not subject to 50.59)
- Regulatory commitment changes
- Degraded or non-conforming conditions
- Configuration management changes (e.g., operator workarounds, extended operation of equipment in manual mode rather than automatic operation modes, and Technical Specification positions/interpretations)

## 2.0 PURPOSE AND SCOPE

### 2.1 Purpose

This document provides guidance for performing a self assessment of the adequacy of programmatic controls for maintaining the licensing basis in order to identify missing or incorrectly applied programmatic elements that can lead to licensing basis differences.

### 2.2 Scope

The assessment approach consists of a data-gathering phase and an evaluation phase. The data-gathering phase employs a three-tiered sampling technique. The first tier involves in-process sampling for the programmatic elements intended to effect a change in the licensing basis. Since programmatic elements may be missing or incorrectly applied, the next two sampling tiers involve a search for differences by sampling for potential operational changes that could be made without procedure changes, and sampling backwards by comparing selected FSAR statements with operational practices. The purpose of the data-gathering phase is to identify a set of potential differences between the operational practices and the licensing basis.

The evaluation phase determines if potential differences are valid. Valid differences are categorized in order to draw conclusions about the adequacy of particular programmatic controls for maintaining the licensing basis. The significance of the findings are used to develop recommendations for programmatic enhancements.

It is recognized that many licensees have performed safety system functional inspections (SSFIs) and other reviews that have assessed the adequacy of their programs to maintain the licensing basis of their plants and to ensure the accuracy of information in the FSAR. These completed activities can be credited, as appropriate, in meeting portions of the assessment described below.

The assessment methodology described below represents only one way of performing the assessment of the adequacy and effectiveness of programs for maintaining the licensing basis. Although the methodology contains a reasonable amount of detail, it is not intended to be prescriptive. Other approaches that provide an equivalent scope of review can also meet the intent of this assessment.



### 3.0 ASSESSMENT METHODOLOGY

#### 3.1 Data-Gathering Phase

The data-gathering phase of the assessment employs three sampling techniques. Each sampling technique is discussed separately:

##### 3.1.1 FSAR Sampling \*

- Extract the relevant FSAR sections for the system(s) being evaluated
- Highlight those FSAR statements that meet the following criteria:
  - ◊ Descriptive phrases regarding frequencies for tests, calibrations, etc.
  - ◊ Configuration descriptions
  - ◊ Descriptions of system operation in different modes (e.g., normal, abnormal, accident/emergency)
  - ◊ Operating limits
  - ◊ Descriptive functional performance statements
- \* NOTE: The intent is to identify a range of FSAR statements associated with operational practices that could be changed and, in the presence of programmatic weaknesses, are not adequately reflected in the FSAR.
- Compare the highlighted FSAR statements with current operational practices using individuals cognizant of the operation of the system and associated engineering problems. Document the following:
  - ◊ Is the FSAR statement accurate with respect to operational practices (procedures, operating philosophy, standing orders, workarounds, etc.)? If not, identify the differences.
  - ◊ Is the FSAR statement clearly understood or in need of clarification?

##### 3.1.2 Programmatic Sampling

- Select three unrelated examples of each of the following types of changes: \*
  - ◊ 50.59 (at least one procedure change evaluation)

- 50.54 (one each from QA, EP and Security)
- Outstanding corrective action for a material condition greater than one year old
- Operating procedure change not evaluated under 50.59
- FSAR change request
- 50.90/50.55a change and associated SER (where NRC approval has been received)
- Regulatory commitment addition or change
- Design change not evaluated under 50.59
- ★ NOTE: The changes selected should have been completed in sufficient time to have been reflected (if required) in the most recent licensing basis update of the FSAR, QA program, etc.
- Review the change to determine if the change should have appeared in the licensing basis and, if so, if the licensing basis accurately reflects the change. For changes that are not accurately reflected in the licensing basis, determine the programmatic step (or missing programmatic step) that would have ensured its accurate incorporation into the licensing basis.
- Document the results of the programmatic sampling.

### 3.1.3 Sampling for potential changes that may occur separate from programmatic or procedure changes

- Compile the following:
  - Workaround list
  - Operations standing orders
  - Technical Specifications positions/interpretations (if any)
  - Sample of documents that may show potentially routine "NA'ing" of procedure steps (e.g., last completed startup procedure, recently completed system operating instructions, shift supervisor log entries for deviations)

- ◊ List of equipment being operated in manual
- ◊ Old\* temporary alterations
- ◊ Old\* non-conformances
- ◊ Old\* tag-outs
- \* "Old" refers to current items that should be reflected (if required) in the last FSAR update per 10 CFR 50.71(e)
- Select a sample from each of the above categories based on the number of items compiled.
- Review the item selected to determine if the item represents a change to the licensing basis and, if so, if the licensing basis accurately reflects the change. For changes that are not accurately reflected in the licensing basis, determine the programmatic step (or missing programmatic step) that would have ensured its accurate incorporation into the licensing basis.
- Document the results of the sampling.

### 3.2 Evaluation Phase

At this point in the assessment, the changes to operating practices that should have been reflected in the licensing basis have been identified. Those not accurately reflected in the licensing basis are differences that must be resolved and categorized.

The evaluation phase cannot be precisely structured. However, the following broad steps should be undertaken.

- Categorize differences in accordance with the following criteria:
  - ◊ Program/process which should have ensured licensing basis accuracy
  - ◊ Significance
    - Safety significant
    - Regulatory significant (i.e., noncompliance or missed commitment)
    - Low significance (e.g., the original information was not required to be included in the FSAR, or the information could not have been

relied upon by the NRC in reaching a safety conclusion)

[NOTE: Section V of NUMARC 90-12, "Design Basis Program Guidelines," provides guidance for assessing the safety significance of differences and for determining if operability and/or reporting issues exist.]

- o 50.59 was correctly/incorrectly applied
- o Licensing basis information has always been inaccurate (i.e., there was no change in operating practice)
- Identify areas of programmatic weakness or missing programmatic controls. If uncertain, pursue additional assessment investigation for the programmatic area in question.
- Characterize overall significance of the findings. Based on this characterization, determine the need to broaden the assessment scope to obtain the necessary confidence that the programs are adequate and are being effectively implemented.
- If applicable, generate necessary quality deficiency documents and identify any reportable situations.
- Prepare recommendations to address programmatic weaknesses.
- Document the results and brief appropriate management.

#### 4.0 NEI REPORT

##### 4.1 Purpose of Report

NEI will compile the overall industry results to assess the composite adequacy and effectiveness of programs designed to maintain the licensing basis of the plants. The overall industry results will be reported to the NRC by NEI.

##### 4.2 Report Format

The report format follows the steps contained in Section 3.0 of this report.

##### Part 1 - FSAR Sampling

- Identify the FSAR systems reviewed under Section 3.1.1
- Indicate the number of FSAR differences identified.

## Part 2 - Programmatic Sampling

- Indicate the total number of items reviewed.
- Indicate the number of items where the change was not accurately reflected in the licensing basis.

## Part 3 - Sampling for potential changes that may occur separate from programmatic or procedure changes

- Indicate the total number of items reviewed.
- Indicate the number of items where the change was not accurately reflected in the licensing basis, if required.

## Part 4 - Evaluation Phase

- Indicate the number of differences that were characterized as being safety significant.
- Indicate the number of differences that were characterized as being regulatory significant.
- Indicate the number of differences where 50.59 was incorrectly applied.
- Indicate the number of differences where the licensing basis information has always been inaccurate.
- Provide a brief summary of the programmatic deficiencies identified, if any.
- Indicate whether the assessment scope is being broadened based on the identified differences.
- Describe any departures from the methodology of this guideline.

## 5.0 DEFINITIONS

### 5.1 Regulatory Commitment

NEI "Guideline for Managing NRC Commitments," endorsed by NRC in SECY-95-300, defines a regulatory commitment as follows:

"Regulatory Commitment" means an explicit statement to take a specific action agreed to or volunteered by a licensee that has been submitted in writing on the docket to the Commission."

### 5.2 Licensing Basis

10 CFR Part 54 defines the current "licensing basis" as follows:



"*Current licensing basis (CLB)* is the set of NRC requirements applicable to a specific plant and a licensee's written commitments for ensuring compliance with and operation within applicable NRC requirements and the plant-specific design basis (including all modifications and additions to such commitments over the life of the license) that are docketed and in effect. The CLB includes the NRC requirements contained in 10 CFR parts 2, 19, 20, 21, 30, 40, 50, 51, 54, 55, 70, 72, 73, and 100 and appendices thereto; orders; license conditions; exemptions; and technical specifications. It also includes the plant-specific design basis information defined in 10 CFR 50.2 as documented in the most recent final safety analysis report (FSAR) as required by 10 CFR 50.71 and the licensee's commitments remaining in effect that were made in docketed licensing correspondence such as licensee responses to NRC bulletins, generic letters, and enforcement actions, as well as licensee commitments documented in NRC safety evaluations or licensee event reports."

NOTE: Responses to NRC bulletins, generic letters and licensee event reports contain some commitments that are outside the scope of the CLB in that they are not necessary to ensure compliance with applicable NRC requirements (e.g., rules, regulations, licenses and orders) or to maintain the plant-specific design basis.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON D.C. 20555-0001

August 14, 1996

Mr. Joe F. Colvin  
President and Chief Executive Officer  
Nuclear Energy Institute  
Suite 400  
1776 I Street, N.W.  
Washington, D.C. 20006-3708

Dear Mr. Colvin:

I am responding to your letter of August 2, 1996, concerning industry actions for assessing programs in place to reaffirm that nuclear power plants are operated in conformance with their licensing basis. Your letter also identified three issues that, in your view, require mutual agreement between the industry and the Nuclear Regulatory Commission (NRC) before the industry would proceed with the initiative: (1) the legal standing of the Updated Final Safety Analysis Report (FSAR) and the NRC's Safety Evaluation Reports; (2) the scope of what constitutes the current licensing basis; and (3) the adequacy of NSAC-125, "Guidelines for 10 CFR 50.59 Safety Evaluations," for performing 10 CFR 50.59 evaluations.

We believe that resolution of the issues you identified is not a prerequisite to reviewing, on a retrospective basis, whether existing programs are sufficient to ensure that licensees know their licensing bases, whether licensing bases have been properly maintained, and whether licensing bases are accurately described in each facility's updated FSAR or other documents. The significant issues recently identified by licensee reviews and NRC staff inspections relate to failures to address degraded and nonconforming conditions properly, failures to perform reviews required by 10 CFR 50.59 before making changes to facilities, and failures to update facility Final Safety Analysis Reports in accordance with 10 CFR 50.71(e). In our view, industry initiatives can proceed notwithstanding that ongoing NRC activities under the 10 CFR 50.59 Action Plan will consider, in a broad sense, issues such as those you raise.

Existing regulations and guidance are sufficient to conduct a retrospective review for conformance to existing regulatory requirements. These include: (1) NRC regulations 10 CFR 50.2, 50.34, 50.54, 50.59, 50.71(e), 50.72, 50.73 and Appendix B; (2) NRC's policy statement - Availability and Adequacy of Design Bases Information at Nuclear Power Plants, 57 FR 35455 August 10, 1992; (3) "Design Bases Program Guidelines," NUMARC 90-12 and NRC letter dated November 9, 1990; and (4) Generic Letter 91-18, "Information To Licensees Regarding Two NRC Inspection Manual Sections On Resolution Of Degraded And Nonconforming Conditions And Operability."

Attachment 4

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The staff is concerned, however, that the proposed initiative may not be of sufficient scope and depth to identify the types of design and operability problems recently identified at several operating plants. Specifically, it is not sufficient to perform a process/procedural based review. An in-depth vertical slice review of actual design basis documentation and comparison of "as built" and "as operated" safety systems is more appropriate.

For example, reviews similar to safety system functional inspections (Inspection Procedure 93801, "Safety System Functional Inspections"), may be used to evaluate a licensee's program effectiveness to maintain the licensing and design bases. These reviews should include: (1) an in-depth review of selected systems' design and design basis since issuance of the facility operating license; (2) risk- and safety-based criteria for selection of systems for review; and, (3) a method to ensure that licensee problem identification and corrective action on the selected systems are representative and consistent with other systems. The in-depth review should examine: (1) engineering design and configuration control; (2) verification of as-built and as-modified conditions; (3) translation of the design bases requirements into operating procedures, maintenance, and testing; (4) verification of system performance through review of test records and observations of selected testing; (5) proposed and implemented corrective actions for licensee-identified design deficiencies; and, (6) modifications made to the systems since initial licensing.

In short, the NRC position has been, and is, that it is the responsibility of individual licensees to know their licensing basis, to have appropriate documentation that defines their design basis, and to have procedures for performing the necessary assessments of plant or procedure changes required by NRC regulations. Until such time that any regulation changes are made as a result of NRC action plan activities, we will continue inspection and oversight activities related to the design basis to ensure compliance with existing regulations.

Sincerely,



Shirley Ann Jackson

Distribution for 50.54(f) letter to utility CEOs dated: October 9, 1996

Docket File  
PUBLIC  
J. Taylor  
EDO Rdg File  
F. Miraglia/A. Thadani  
R. Zimmerman  
DRPW/DRPE/DRPM Directors  
DRPW/DRPE/DRPM Deputy Directors  
J. Lieberman  
J. Goldberg  
W. Dean  
G. Tracy  
B. McCabe  
J. Mitchell  
D. Matthews  
E. McKenna  
K. Thomas  
F. Akstulewicz  
OGC  
ACRS  
OPA  
DRPW/DRPE PDs  
NRR PMs  
NRR LAs  
PD Rdg File  
R.W. Cooper, RI  
E. Merschoff, RII  
W.L. Axelson, RIII  
J. Dyer, RIV  
K. Perkins, RIV/WCFO