NUCLEAR ENERGY INSTITUTE

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VICE PRESIDENT,
TECHNICAL/REGULATORY

January 24, 1995

Mr. John C. Hoyle, Acting Secretary
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

ATTN: Docketing and Service Branch

Dear Mr. Hoyle:

These comments are submitted by the Nuclear Energy Institute (NEI)[1], on behalf of the nuclear energy industry, in response to the request for comment on the proposed rule, "Shutdown and Low Power Operations for Nuclear Power Reactors," noticed in the *Federal Register* dated October 19, 1994 (ref. 59 Fed. Reg. 52707).

NEI (and its predecessor NUMARC) has previously submitted comments to the NRC on the topic of shutdown and low power operations in advance of the request for comments on the proposed rule. We respectfully request that those comments be considered as part of this submittal since they remain germane to the proposed rule. The earlier comments were transmitted by NUMARC letter dated January 11, 1994, to Mr. William T. Russell; by NEI letter dated March 28, 1994, to Mr. Edward L. Jordan; and by NEI letter dated May 25, 1994, to the Honorable Ivan Selin. This submittal complements our previous comments by focusing on the two new aspects of the rulemaking that were not previously available, i.e., the proposed rule itself and the draft regulatory guidance. We trust these comments are constructive and beneficial to the NRC's ongoing consideration of shutdown and low power operations.

We remain deeply concerned by many aspects of the proposed rule and draft regulatory guide, including the manner by which the Commission is moving forward with the rulemaking process. Our concerns are focused in three principal areas:

- Lack of a current regulatory analysis that supports the proposed requirements
- Need for regulatory "footprints" following industry initiatives
- Economic impact of the proposed requirements

The Commission has on many occasions expressed its desire to attain more openness and meaningful public participation in the regulatory process. In general, the Commission has

[1] NEI is the organization responsible for establishing unified nuclear industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all utilities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/ engineering firms, fuel fabrication facilities, materials licensees, and other organizations and individuals involved in the nuclear energy industry. NEI is the successor organization to the Nuclear Management and Resources Council (NUMARC).

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been successful in this endeavor. However, in this particular case, we believe this objective has not been met by moving forward with a rulemaking that lacks a relevant, updated regulatory analysis.

It is extremely difficult for interested parties to offer meaningful comments on the proposed rule without access to the regulatory analysis that provides the rationale and basis for the requirements. The regulatory analysis is an essential part of the rulemaking process. We do not understand how the Commission could proceed with public comment, especially given the concerns raised by the ACRS in its letter dated May 13, 1994, to the Executive Director for Operations and in our May 25, 1994, letter to Chairman Selin.

As a minimum, we believe the Commission should offer another opportunity for public comment on the proposed rule. This should occur when a revision to the regulatory analysis is available which is relevant to and provides the basis for the proposed requirements.

Our second principal area of concern deals with the concept of regulatory "footprints," or the need for additional regulation to lock in improvements made by industry. We note that the *Federal Register* notice is quite explicit on this topic, stating, "Significant improvements have already been achieved in this regard through the implementation of the NUMARC guidelines; however, the proposed rule would place a regulatory footprint on outage safety and codify improvements made by industry to ensure that (1) reductions in risk already achieved are not eroded in the future and (2) consistency and uniform achievement of the safety improvements is realized throughout the industry."

While we are pleased by the NRC's recognition of the improvements achieved by the industry, we are concerned about the adverse impact that regulatory footprints may have on the regulatory process. First, this concept undermines 10 CFR 50.109, the backfit rule. The main thrust of the rule, to demonstrate a substantial increase in the protection of public health and safety that is cost-justified, is an essential element in achieving a stable regulatory environment. To allow the perceived need to lock in improvements already made by industry as the principal basis for new requirements is insufficient justification in this case and sets an undesirable precedent for future rulemaking proceedings.

Secondly, as we have stated on numerous occasions in the past, the codification of an industry initiative into regulations discourages voluntary self-improvement efforts. If the industry or any individual licensee senses that a regulatory footprint is imminent, it will be less likely to commit resources proactively. Rather, it will wait until the regulatory action is final so that what is needed for implementation and compliance are known and deemed acceptable by NRC. We do not believe this is a type of regulatory environment that the Commission wishes to promote.

Our third principal area of concern deals with the economic impact of the proposed rule. In the past few years, the industry has made tremendous strides in improving outage safety. These gains were mainly achieved by focusing management attention on outage planning and control activities. This management attention has brought about an ancillary benefit,

greater efficiency in conducting outage activities. In summary, the combined result of this effort has been shorter, safer outages, a classic win-win scenario for all parties.

We are concerned that the proposed rule would not only divert management's focus from improvement to compliance, but that it would also reverse the current trend by increasing outage durations without adding value to safety. We believe the staff has not addressed the impact on outage durations that the proposed requirements would have. Feedback from several of our members indicate that these requirements would add up to nine days to each outage. Additionally, the proposed requirement to assume a complete loss of offsite power and the most limiting single failure in the plant cannot be achieved by many licensees without substantial economic impact. Few, if any, plants were designed to this standard for shutdown operations and most would require significant expenditures to modify existing designs. Rather than proposing a prescriptive, deterministic requirement that appears to be based on very conservative assumptions, we believe the NRC should reassess the need for this requirement using probabilistic methods based on realistic, best estimate assumptions.

At a time when all power reactor licensees are preparing for the new competitive economic environment in the electric utility industry, this proposed rule may have a significant adverse impact with, at best, marginal safety enhancements.

In summary, we remain deeply concerned by the direction and content of the proposed rule. We believe the Commission should seek an additional round of public comment when a relevant, updated regulatory analysis is completed. Secondly, we believe the Commission should reassess the value added by regulatory footprints as well as their potential adverse effect on the regulatory environment. Finally, we believe the Commission should be fully aware of the economic burden that would be imposed by the proposed requirements. The bottom line is that a proposed rule of this magnitude should not be promulgated without a firm, comprehensive understanding of its true benefits, impacts and consequences.

Specific industry comments on the proposed rule and draft regulatory guide are provided in Enclosures 1 and 2, respectively. Again, we note that these comments are severely constrained by the unavailability of a relevant, updated regulatory analysis.

We appreciate the opportunity to comment on this important issue and look forward to future interactions with the Commission and NRC staff.

Sincerely,

William H. Rasin

ARP/ljw
Enclosures

c: William Russell, NRR

Industry Comments on the Proposed Rule
10 CFR 50.67, "Shutdown and Low Power Operations"

(a) Applicability.

No comment.

(b) Definitions.

The definitions included in this section should be consistent with definitions contained in current plant Technical Specifications.

(c) General Requirements.

(c)(1) Reactivity and Inventory Changes and Subcooling Loss

This paragraph requires licensees to provide reasonable assurance that events involving key RCS parameters will not occur during shutdown or low power. We believe that every licensee already meets this requirement. However, we also believe that it is unreasonable to expect that shutdown events, as defined in this paragraph, will not occur ever again.

The main intent of industry efforts to address shutdown concerns was to minimize both the number and significance of shutdown events. We can never preclude a discrete combination of human errors, equipment failures, or other adverse factors or conditions that may result in an undesirable plant transient. Thus, any expectation that an uncontrolled change in a certain parameter "will not occur" is unreasonable.

Our principal concern is that this proposed requirement of the rule is included solely to serve as enforcement basis for a violation should a licensee have an event. We believe this enforcement basis is already provided by paragraph (a)(3) of 10 CFR 50.65, the maintenance rule. A licensee must assess the overall impact on plant safety when equipment is removed from service. If an uncontrolled change, as described in (c)(1) of the proposed rule, occurs, we believe the NRC would have ample enforcement basis for a violation should it find that a licensee's failure to control plant equipment resulted in the described transient.

Finally, we believe that this proposed requirement does not meet the provisions of 10 CFR 50.109, the backfit rule. There is no demonstration of the substantial additonal protection that would result from this requirement in the current regulatory analysis. Thus, for this reason as well as the reasons given above, we believe this proposed requirement is unnecessary and unwarranted, and that it should be deleted from the proposed rule.

(c)(2) Maintenance and Reestablishment of Containment Integrity

First, we wish to confirm that this proposed requirement should not be applicable to BWRs. We believe the current regulatory analysis (Table 2.2) indicates this, but it is unclear in this paragraph.

We have several concerns with this proposed requirement to assure containment integrity is maintained or can be reestablished to prevent releases in excess of Part 100 guidelines. These concerns stem from what is meant by the word, "integrity." In the industry today, containment integrity means operability for Mode 1 conditions, i.e., capability to withstand the licensed peak containment pressure. If this is what the proposed requirement intends, then the impact on licensees would be significant without any apparent safety benefit.

We believe that each PWR licensee already provides reasonable assurance of containment closure. NUMARC 91-06 directly addresses this topic. Additionally, Generic Letter (GL) 88-17 requested specific actions of and provided specific guidance to PWR licensees on containment closure. In fact, a specific definition of containment closure was provided in an enclosure to the generic letter. We do not take issue with the specific actions, guidance or definition relative to containment closure that is in GL 88-17. If the NRC is concerned with the specific actions of individual licensees in response to GL 88-17, then it should discuss its concerns directly with those licensees.

We believe that containment closure adequately protects the public from a release in excess of the Part 100 guidelines during shutdown. In addition, the proposed requirement for containment integrity would likely add several days to the outage duration of most PWRs. This is because certain outage activities would be delayed by maintaining the containment operable. In fact, we believe most licensees would be unable to reestablish containment integrity in a timely manner and, based on this proposed requirement, would not be able to open containment until the refueling cavity is filled. Thus, we believe the proposed requirement for containment integrity does not provide substantial additional protection, would unnecessarily lengthen outage durations, and therefore does not meet the requirements of 10 CFR 50.109, the backfit rule. This proposed requirement should be deleted.

(c)(3) Identification and Control of Safety Equipment

(i) There are many plant systems and components that could be used to perform the functions listed, some of which may be classified as non safety-related. It is unclear whether this paragraph requires the identification of only safety-related equipment.

(ii) We have several concerns associated with this paragraph. First, the requirement does not differentiate between the significant differences in risk during various stages of the outage other than refueling operations. For example, the time to boiling during reduced inventory conditions two days after shutdown is much shorter than forty-two days after shutdown. The rigidity of this proposed requirement leads to resources being applied without commensurate safety benefits.

It is unclear whether the assumption of a single failure in this paragraph refers to a single failure in the onsite electric power system or to a single failure in any of the identified equipment that has a safety function. In either case, the current regulatory analysis failed to identify any impact on the licensee.

If the single failure is assumed on the onsite electric power system, many licensees would need to maintain both EDGs in service until refueling operations commenced. This action would likely add several days to the duration of an outage where overhaul of the EDG is required. Secondly, in cases where the outage was forced by the necessity to repair the EDG or any other identified equipment, it is unclear as to what the licensee must do to stay in compliance. These impacts are not addressed in the current regulatory analysis.

If the single failure could be assumed for any of the systems or components listed in paragraph (i), then many licensees may be forced to modify current systems. For example, some plants may have common suction headers to redundant pumps that have a shutdown safety function. If the single failure is assumed at the common suction line, the impact on the licensee would be extensive. This impact would have to be included in the regulatory analysis as required by 10 CFR 50.109 since a backfit would be imposed.

(iii) In either provision (A) or (B) of this paragraph, this requirement calls for including the controls required by paragraph (c)(3)(ii) directly in the technical specifications or plant procedures required by technical specifications. We fail to see the need for this entire paragraph. If the rule requires controls per (c)(3)(i) and (ii), then it would be unnecessary to have additional regulatory requirements, i.e., technical specifications, to implement what the rule already requires. This paragraph is redundant, unnecessarily prescriptive, and should be deleted.

(c)(4) Fire Protection

Neither NUREG-1449 or the current regulatory analysis have substantiated the need for this requirement. Moreover, we note that in NRC AEOD/S93-05, "Operational Data Analysis of Shutdown and Low Power Licensee Events Reports," it was found that no notable trends were identified for fire initiating events. Thus, we believe that the qualitative conclusion founded on two plant visits by the NRC staff is insufficient as a basis for new regulatory requirements.

As we have suggested in previous communications, the consideration of additional fire protection requirements for shutdown conditions should be subsumed under the evaluation of the revision to Appendix R being conducted by the Office of Nuclear Regulatory Research.

(d) Requirements for licensees of PWRs.

This requirement essentially calls for diverse RCS level indication for PWRs that will probably only be applicable or useful for mid-loop operation. PWR licensees have already taken actions in response to Generic Letter 88-17 to improve RCS level indication. Additionally, industry initiatives to enhance the planning and control of activities that may

affect mid-loop operation have been extensive. Thus, we believe any safety benefits to be gained through the addition of diverse level indication would be marginal on a generic basis.

We suggest that the NRC pursue with PWR licensees their implementation of the recommendations given in GL 88-17. If there are plant-specific considerations that make the addition of diverse RCS level instrumentation a substantial safety benefit, then a plant specific backfit may be warranted.

(e) Implementation

No comments.

Industry Comments on Draft Regulatory Guide 1.XXX
"Shutdown and Low-Power Operations at Nuclear Power Plants"

A. Introduction

At the end of the first paragraph, it is noted that the improvements proposed by the staff are aimed at problems repeatedly observed in operating experience, including fires. We note that in NRC AEOD/S93-05, "Operational Data Analysis of Shutdown and Low Power Licensee Event Reports," it was found that no notable trends were identified for fire initiating events. Thus, we believe that the reference to fires should be removed from this paragraph.

B. Requirements

In citing paragraph (c)(1) of the proposed rule, the draft regulatory guide uses the phrase, "must assure," whereas the phrase used in the proposed rule is, "must provide reasonable assurance." The draft regulatory guide should be amended.

C. Guidance

(c)(1) Reactivity and Inventory Changes and Subcooling Loss

This is a restatement of what the rule requires. No guidance is provided.

(c)(2) Maintenance and Reestablishment of Containment Integrity

This is a restatement of what the rule requires. No guidance is provided.

(c)(3) Identification and Control of Safety Equipment

We have several concerns with the regulatory guidance provided for this proposed requirement. First, we believe the use of new regulatory terminology like "capable" and "connectable" is undesirable and unwarranted. There is already a consensus formed through industry efforts on shutdown (NUMARC 91-06) and implementation of the maintenance rule (NUMARC 93-01) that establish available and functional as the terms whose definitions convey the appropriate guidance and understanding. Introduction of these new terms would only confuse the issue.

The remainder of the regulatory guidance dealing with a formal outage planning and control program should be deleted. First, to state that "planning and controlling activities covered by the rule must be carried out through a formal program" is inappropriate for a regulatory guide. Second, to specify the elements that the program should have goes well beyond the NRC's responsibility and authority for assuring public health and safety. Outage planning and control is the purview of utility management.

The regulatory guide should not suggest the use of existing industry guidance documents as an acceptable means to comply with the proposed rule. NUMARC 91-06 goes well

beyond public health and safety concerns and was not developed for endorsement in regulatory guidance.

We note that when the Commission directed the staff to proceed with the rulemaking process for shutdown, it requested that any new requirements be crafted in a performance-based regulatory approach. In this case, the programmatic, prescriptive portion of the original generic letter/proposed rule has been placed in the regulatory guide as a "must" for the licensee to be in compliance. We believe that this is contrary to both the intent and spirit of the direction provided by the Commission. The regulatory guidance referring to a formal outage planning and control program should be deleted.

(c)(4) Fire Protection

We believe the regulatory guidance provided for this proposed requirement is a good start at regulatory guidance for a revised Appendix R that is based on actual conditions, realistic assumptions and risk significance. We recommend that this guidance, as well as the proposed requirement, be subsumed under the evaluation of a revision to Appendix R being conducted by the Office of Nuclear Regulatory Research. To do otherwise would breed inconsistency and incoherency in fire protection requirements covering all plant conditions.

(d) Water Level Instrumentation in PWRs

As stated in comments on this proposed requirement, we believe that the addition of diverse RCS level instrumentation beyond the existing independent level instrumentation may be of marginal safety benefit generically. We also question whether the desire for reliable, accurate means of monitoring water level can be better served by the ultrasonic devices or local differential pressure across the hot leg as suggested in the guidance.

The addition of diverse instrumentation necessarily introduces more complexity for operations and maintenance personnel. When this diverse instrumentation is not as reliable as the existing instrumentation, the possibility exists that this modification could actually introduce risk by creating opportunities for confusion and error.

D. Implementation

No comments.