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March 1, 1982

Docket Nos. [REDACTED]

50-336
B10430



Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

- References:
- (1) W. G. Counsil letter to Commissioner J. M. Hendrie, dated March 19, 1981.
 - (2) W. G. Counsil letter to D. G. Eisenhut, dated May 13, 1981.
 - (3) W. G. Counsil letter to D. G. Eisenhut, dated June 23, 1981.
 - (4) W. G. Counsil letter to D. G. Eisenhut, dated November 6, 1981.
 - (5) W. G. Counsil letter to D. G. Eisenhut, dated January 15, 1982.
 - (6) D. G. Eisenhut letter to All Power Reactor Licensees with Plants Licensed Prior to January 1, 1979 (Generic 81-12), dated February 20, 1981.
 - (7) D. L. Ziemann letter to W. G. Counsil, dated October 3, 1978 (Docket No. 50-213).
 - (8) D. L. Ziemann letter to W. G. Counsil, dated September 26, 1978 (Docket No. 50-245).
 - (9) R. W. Reid letter to W. G. Counsil, dated September 19, 1978 (Docket No. 50-336).
 - (10) H. R. Denton letter to W. G. Counsil, dated November 11, 1981 (Docket Nos. 50-213 and 50-336).

Gentlemen:

Haddam Neck Plant
Millstone Nuclear Power Station, Unit Nos. 1 and 2
Fire Protection

In 45FR76602 dated November 19, 1980, the Nuclear Regulatory Commission promulgated amendments to 10CFR Part 50 regarding a new fire protection program for nuclear power plants licensed to operate prior to January 1, 1979. The Federal Register notice was published on November 19, 1980 and became effective February 17, 1981.

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Connecticut Yankee Atomic Power Company's (CYAPCO) and Northeast Nuclear Energy Company's (NNECO) initial response to this regulation was Reference (1). The scope of Reference (1) included open items from the original docket-specific SERs issued by References (7), (8), and (9) for the Haddam Neck Plant, Millstone Unit No. 1 and Millstone Unit No. 2, respectively, in addition to addressing the new requirements of Appendix R. Since the docketing of Reference (1) all other fire protection issues such as Section III.H, Fire Brigade, Section III.J, Emergency Lighting, and Section III.O, Oil Collection System for Reactor Coolant Pumps, have been resolved. It is noted that Reference (10) issued an exemption from certain requirements of Section III.O for the Haddam Neck Plant and Millstone Unit No. 2.

The remaining issues to be resolved are III.G, Fire Protection of Safe Shutdown Capability and III.L, Alternative and Dedicated Shutdown Capability for each of the three operating units. The purpose of this submittal is to fulfill the requirements of 10CFR50.48(c)(5) by submitting plans and schedules to comply with the requirements of 10CFR50.48(c)(2), (c)(3), and (c)(4), and to demonstrate how alternate shutdown capability will be assured. References (2) through (5) trace the history of our schedular exemption requests to respond to this requirement which was originally due on March 19, 1981. By this submittal, CYAPCO and NNECO intend to demonstrate that by a combination of compliance with and exemptions from the specific provisions of Appendix R, the objective of assuring safe shutdown capability in the event of a fire is met.

As described in some detail in References (1) and (2), CYAPCO and NNECO have experienced considerable difficulty interpreting the rule, understanding the conduct of the exemption process, and fulfilling the Staff's documentation requirements for this regulation. These factors exacerbated the difficulties encountered in attempting to achieve our objective of optimizing an approach to this regulation, and resulted in expenditures of resources which ultimately proved to be non-productive towards resolving this matter. These factors were instrumental in the formation of the Nuclear Utility Fire Protection Group (NUFPG). Our involvement in the NUFPG and the interaction between the NUFPG and the NRC Staff have lead towards a mutually acceptable interpretation of many of the provisions of the existing fire protection regulations. Many of the concepts discussed between the NUFPG and the Staff have been incorporated into our evaluation process on a fire zone specific basis. Interactions with the Staff via this Group has lead to a submittal which focuses on those parameters and concepts which the Staff will need to render a determination on the acceptability of this document.

In the interest of facilitating the understanding of the plant-specific evaluations which follow, the following discussion is provided.

I HISTORY

Since the initial evaluations of the Browns Ferry fire in 1975, CYAPCO and NNECO have been actively engaged in implementing fire protection modifications and improvements to lessen the susceptibility to damage in the event of a postulated fire. Plant-specific Fire Hazards Analysis (FHA) were prepared and docketed in early 1977 and formed the basis for extensive hardware modifications to upgrade and augment existing fire protection capabilities. In 1978 the NRC conducted inspections for each facility and NRC personnel were accompanied by consultants with recognized expertise in fire protection matters. These inspections and numerous subsequent telephone discussions and docketed correspondence formed the basis for plant-specific safety evaluation reports on fire protection which were issued in 1978 (References (7), (8), and (9)).

The importance of fire protection measures, both active and passive, was demonstrated by the issuance of plant Safety Technical Specifications in the form of Limiting Conditions for Operation, Surveillance Requirements, and Administrative Controls for the principal fire protection features. Throughout the interval from the Browns Ferry fire in 1975 to the publication of plant-specific SERs, fire protection discussions, evaluations, and modifications were made on a fire zone specific basis. Such an approach was necessary based upon the unique nature of each facility and each zone within that facility. The state of fire protection technology was such that meaningful generic positions or requirements could not be promulgated on a detailed basis. Among the many variables which must be evaluated in arriving at reasonable fire protection measures are:

- o Presence of equipment needed for safe shutdown.
- o Configuration and relative proximity of safe shutdown equipment.
- o Fixed combustible loadings.
- o Potential for transient combustibles.
- o Fire retardant features such as cable coatings.
- o Administrative controls.
- o Fire detection systems.
- o Manual or automatic fire suppression.
- o Size and training of fire brigade.
- o Proximity of local fire department.

Our original interpretation of 10CFR50.48 and Appendix R to 10CFR50 was such that it appeared that the above described fire zone specific evaluation methodology had virtually been discarded by the NRC. The requirements of Section III.G and III.L were extremely prescriptive and seemingly discounted the philosophy employed in fire protection matters since the Browns Ferry Fire of 1975. Especially for the older operating facilities, compliance with any of the three alternatives given in Section III.G.2 of Appendix R is extremely difficult for many fire zones. Furthermore, in our view, compliance with the restricted alternatives of III.G.2 is not necessary to ensure the continued protection of public health and safety. With an improved understanding of the conduct of the exemption process and the introduction of the concept of equivalent protection, we believe this dilemma has been resolved and the issue can proceed towards a satisfactory resolution.

II Approach Used to Address III.G and III.L

The approach used to evaluate and assure alternate shutdown capability is an extension of the concepts employed in the late 1970s. As described in some detail later in this submittal, a zone by zone evaluation for each facility was conducted. Fundamentally, an initial determination was made as to whether any fire zone contained equipment which is credited for achieving a safe shutdown condition. For those fire zones where such equipment was located, an assessment as to the degree of current compliance with the Appendix R alternatives was made. Where discrepancies were identified, various alternative solutions were evaluated. Some fire zones can be readily modified to achieve compliance with Appendix R. In other instances the degree of non-conformance is such that it can be concluded that the non-conformances do not adversely affect public health and safety. In such instances an exemption is being requested and supporting justification provided. In other cases a combination of additional fire protection improvements with a limited exemption for reasons contained in the fire zone specific evaluations is used. It is our contention that for all instances where an exemption to the requirements of Appendix R is being requested, this alternative approach is justified on the basis that the maximum credible fire does not result in an inability to achieve safe shutdown.

It is noted that the literal interpretation of Appendix R requires an evaluation of "systems, structures, and components" required to achieve safe shutdown. Based upon our understanding of the intent of Appendix R, exclusively mechanical components were excluded from the scope of this review. For instance, in a PWR, the pressurizer is credited for use in achieving safe shutdown, and it has no redundant counterpart. Inherently, compliance with Appendix R is impossible for this component, yet an exemption was not requested nor does an authentic fire hazard exist. Similarly, safe shutdown systems with common piping headers were not identified as candidates for exemptions from Appendix R. For such systems, however, reviews of the valve circuitry, associated circuits, and required instrumentation were completed to the criteria of Appendix R. It is our understanding that this interpretation of Appendix R requirements is compatible with that of the NRC Staff.

To further assure the adequacy of the proposals contained herein CYAPCO and NNECO contracted a consultant to perform a probabilistic risk assessment from a fire hazards perspective for each of the three operating nuclear units. Fire initiation and progression sequences that result in failure to achieve safe shutdown were identified and quantified in terms of event frequencies per year. The commonality between the modifications identified using the equivalent protection concept discussed above, and the modifications identified using the more rigorous quantitative probabilistic evaluations serves to assure the completeness and accuracy of the modifications contained herein. Details are contained in Section II and Appendix A of this submittal. Even with the many conservatisms employed to evaluate the susceptability of the facilities to fire hazards, after implementation of the modifications proposed herein in the case of the Haddam Neck Plant and Millstone Unit No. 1, and currently for the case of Millstone Unit No. 2, the probability that, given a fire safe shutdown condition is not achieved is less than the values identified below:

<u>Given a Fire, Probability of Failure to Achieve Safe Shutdown per Reactor Year</u>	
Haddam Neck Plant	7.9×10^{-6}
Millstone Unit No. 1	7.1×10^{-6}
Millstone Unit No. 2	1.1×10^{-5}

CYAPCO and NNECO note that these values, while based upon conservative methodology, compare favorably with the Proposed Policy Statement on Safety Goals for Nuclear Power Plants prepared by the Commission and published on February 11, 1982. The calculated inability to achieve safe shutdown as a result of a fire is approximately an order of magnitude or more less than the proposed acceptable likelihood of a large-scale core melt. Recognizing that current industry guidelines (NUREG/CR 2300PRA Procedures Guide dated September 28, 1981) suggest that the typical probability of core melt resulting from a postulated fire is approximately 20% of the overall probability of core melt, the current (Millstone Unit No. 2) or post-implementation (Haddam Neck Plant and Millstone Unit No. 1) configurations will conform to this guideline. The risk assessments also serve to support our conclusion that continued plant operation is justified pending final resolution of the fire protection issue. Existing capabilities to achieve safe shutdown in the event of a fire are addressed in quantitative terms in these reports.

III REPORT FORMAT

Attached to this forwarding letter are three reports entitled Fire Protection, Appendix R Review, one each for the Haddam Neck Plant, Millstone Unit No. 1, and Millstone Unit No. 2. Each report contains several Sections and Appendices described below:

- o Section I - Introduction -- A brief statement of the purpose and conclusions of the report is provided.
- o Section II - Probabilistic Risk Assessment -- This Section contains a brief summary of the PRA study conducted for each of the three facilities. Included is a summary of the modifications recommended by this study and the quantitative results.
- o Section III - Clarification of Technical Issues -- A number of technical issues on the subject of fire protection merit specific discussion. These issues are as follows:
 - Associated Circuits
 - Loss of Offsite Power
 - High/Low Pressure System Interface
 - Response to Generic Letter 81-12
 - Control Room Exemption
- o Section IV - Methodology of Fire Protection Evaluation -- A discussion of the approach used to respond to the specific requirements of III.G and III.L is provided.
- o Section V - Safe Shutdown Discussion -- In this section a discussion of the various methods available for each unit to conduct a normal and an emergency shutdown is provided. There exist a number of diverse means to achieve safe shutdown and this capability represents another layer of the defense-in-depth concept.
- o Section VI - Safe Shutdown Concept for Appendix R -- In the previous Section the various methods available to achieve safe shutdown are identified. In this Section, the principal method credited to achieve safe shutdown for Appendix R evaluations, assuming offsite power is lost, is described in detail.
- o Section VII - Fire Zone Analysis -- In this section, an evaluation of each fire zone within the facility is provided. The fire zone designations utilized are identical to those described in the February, 1977 plant-specific fire hazards analyses. This section contains the application of the methodology described in Section IV. In the interest of ensuring that this submittal constitutes a "stand alone" document, considerable detail on the equipment layout and configurations is provided within this Section. Color coded, full scale drawings are provided as Appendix E where necessary to illustrate the justification for an exemption based upon the concept of equivalent protection. Because the methodology employed is based upon a fire zone specific evaluation, this Section is the key segment of the entire submittal. For each fire area, the following details are provided:

- Fire Area
 - Safe Shutdown Equipment
 - Sketch or Schematic of the Fire Area
 - Design Features
 - Combustible Material
 - Existing Fire Protection
 - Compliance with Appendix R
 - Proposed Modifications
 - Discussion
 - Reference Drawings
 - Photographs and sketches where applicable
- o Section VIII - Schedule for Compliance -- For each of the fire zones discussed in Section VII, information constituting a synopsis of current Appendix R status and proposed actions is provided. The synopsis is depicted in Tables with the following headings:
 - Fire Zone (Designation)
 - Current Compliance (Yes/No)
 - Will Comply (Yes/No)
 - Exemption Requested (Yes/No)
 - Proposed Modifications (Summary)
 - Implementation Schedule
 - o Appendix A - Probabilistic Risk Assessment Report -- The executive summary of the contracted study completed for each unit is provided. Each study includes:
 - Introduction
 - Methodology
 - Results
 - Conclusions
 - References
 - o Appendix B - Repairs of Equipment Required Only for Cold Shutdown -- This appendix presents the CYAPCO and NNECO philosophy regarding the approach used to conduct repairs to damaged equipment required only for cold shutdown. A general discussion regarding stored replacement equipment and available on-call personnel is provided.
 - o Appendix C - Safe Shutdown System Descriptions -- As a supplement to the safe shutdown discussions of Sections V and VI, individual system design descriptions and schematics are provided.
 - o Appendix D - Facility Fire Zone Layout Drawings -- In Section VII, a fire zone specific discussion and schematic representation of the zone is provided. For ease of reference, this Appendix contains the drawings which identify all fire zones within the facilities as originally identified in the Fire Hazards Analyses docketed in February of 1977. As the fire zones and boundaries established in the 1977 submittals formed the basis for all subsequent fire-related evaluations, these boundaries were also the foundation for this Appendix R Review. When redundant safe shutdown components were located in different fire areas as established in the 1977 analyses, no further investigation was conducted.

- o Appendix E - Fire Zone/Cable Routing Identification Drawings -- To facilitate comprehension of the configurations and proximity of redundant safe shutdown equipment and cables, full size color coded drawings of the fire zones discussed in Section VII are provided. It is intended that this detailed information will facilitate the Staff's reviews of CYAPCO's and NNECO's determinations regarding compliance or proposed compliance with Appendix R, or for concurrence with the justification for requested exemptions.

Because of the volume of material being docketed, the following format has been adopted. Sections I through VIII and Appendices A through D have been bound into one volume. Only ten copies of the color-coded drawings comprising Appendix E are being docketed, and these have been bound into a separate volume. In addition, only ten copies of color-coded drawings used to illustrate the methodology employed in the associated circuits evaluations are being provided. For these ten copies, the drawings are bound within Section III.A.

IV IMPLEMENTATION SCHEDULE

Section VIII of the reports summarizes the compliance status with respect to Appendix R and identifies the modifications proposed. One heading on the Tables contained within Section VIII is "Implementation Schedule." The following discussion regarding our current implementation plans is provided to supplement the information contained in Section VIII.

Appendix R recognizes a distinction in implementation schedule between those Appendix R modifications which require prior NRC approval and those which do not. Those modifications which do not require prior NRC approval are governed by the schedule of either 10CFR50.48(c)(2), if plant shutdown is not required for implementation, or 50.48(c)(3), if a plant shutdown is required for implementation. The schedule for several of the modifications identified in Section VIII of this submittal is governed by 50.48(c)(2) or 50.48(c)(3), and in many instances the Appendix R implementation date has already passed. CYAPCO and NNECO addressed this situation by requesting exemptions in Reference (4), and to date the Commission has not responded to these requests. The only types of modifications to achieve compliance with Appendix R for which prior NRC approval is required are the installation of alternative or dedicated shutdown capability, which are governed by 50.48(c)(5). In the case of the Haddam Neck Plant, Millstone Unit No. 1, and Millstone Unit No. 2, there are no proposed modifications which constitute alternative or dedicated shutdown capability. There are numerous fire areas for which exemptions are being requested; consequently the implementation schedule is governed by either 50.48(c)(6) or is not explicitly addressed by Appendix R. Our previous and current exemption requests cite not only 50.48(c)(6) but also 50.12(a) in that not all exemptions requested are based upon an assertion that the required modifications would neither enhance fire protection safety, nor are detrimental to overall facility safety. Many exemption requests are based upon the contention that the identified alternative achieves a level of protection equivalent to that achieved by compliance with Appendix R. In our view, equivalent protection represents a third basis for an exemption; one that is not explicitly recognized in 50.48(c)(6) but which NUFPG's discussions with the Staff identified as being implicit in the regulations.

Because a large percentage of the proposed modifications involve exemption requests, and recognizing the inter-dependency of the proposed modifications, CYAPCO and NNECO hereby request, pursuant to 10CFR50.48(c)(6) and 10CFR50.12, an exemption to the schedular requirements of 10CFR50.48(c)(2) and (c)(3) pending Commission review and approval of these reports submitted in fulfillment of the provisions of 50.48(c)(5). It would be inappropriate to proceed with a subset of the total number of modifications recognizing that the Staff may deny some of the exemption requests. Staff denial of certain key exemption requests may significantly alter the method by which CYAPCO and NNECO ultimately satisfy Appendix R requirements. Such denial may render other proposed modifications inappropriate, of an interim nature, or superfluous. We are concerned about the possibility of initiating plant backfits without reasonable assurance as to their permanance and regulatory adequacy for reasons articulated in my letter to Chairman Palladino dated September 14, 1981. Nonetheless, we are prepared to conduct telephone discussions and/or meetings with the Staff and their consultants to arrive at a mutually acceptable implementation plan and schedule at your earliest convenience. However, we are not planning to implement any of the modifications proposed herein without prior written NRC acceptance or approval.

Another clarification regarding the review status of the modifications proposed herein is that corporate reviews pursuant to 10CFR50.59 have not been completed. These reviews will be on-going during subsequent weeks to ensure that other aspects of facility safety will not be adversely affected by the implementation of the modifications identified. Examples of this potential where our internal reviews have yet to be completed include:

- o Evaluations regarding the impact of cable wrappings or enclosures on the seismic designs of cable trays and raceway systems, or on the ratings of the cables enclosed.
- o Evaluations of the impact of new suppression systems to determine if equipment for safe shutdown required will be disabled, to ensure that adequate drainage is provided, to verify that adequate water supplies are available, etc.
- o Investigations of the impact of additional curbing/diking on operations personnel access requirements and OSHA requirements.
- o Investigations regarding any impacts on heating, ventilation, and air conditioning requirements.
- o Verification that there are no significant changes in environmental qualification profiles which could impact design temperatures, pressures, submergence, or other parameters.

- o Evaluations regarding any changes to other analyses including high energy pipe break, internally generated missiles, etc.
- o Verification that the seismic design is not adversely affected by any of the proposed modifications.
- o Verification that system testing and maintainability are not compromised by any of the proposed modifications.

These internal reviews are in progress on a schedule intended to support planned interactions with the Staff such that these reviews will not delay resolution of this issue.

It is reiterated, however, that prior written NRC acceptance or approval is requested prior to implementation of the modifications proposed.

In Section VII of these reports, the concept of changes to Section 6 of the Technical Specifications is identified. Following interaction with the Staff, we would be prepared to formally propose a license amendment to reflect the above concept, and we would also be prepared to propose a license amendment to incorporate appropriate Limiting Conditions for Operation and Surveillance Requirements on the proposed fire protection equipment and initiate implementation subsequent to Staff acceptance of the proposals identified.

V RESOLUTION OF SER OPEN ITEMS

By individual letters to licensees dated November 24, 1980, the NRC identified the publication of the fire protection rule which was appended as Enclosure 1. Enclosure 2 to those letters consisted of a summary listing of the open items concerning the fire protection features left unresolved since the issuance of References (7), (8), and (9). Reference (1) contained a section entitled "SER OPEN ITEMS," within which the status of these open items was summarized.

With the docketing of this submittal, our proposed resolution for each of these items has been completed. A synopsis of the relevant items is as follows.

For the Haddam Neck Plant, SER item 3.2.1 was entitled "Alternate Shutdown Capability." Areas of the plant identified within the scope of review included the control room, switchgear room, cable spreading area, primary auxiliary building, cable vault, and containment. Each of these areas (and many others) has been evaluated to the criteria of Appendix R and the results are presented in Section VII of this submittal.

Regarding Millstone Unit No. 1, the SER open item dealing with safe shutdown modifications was resolved by the issuance of License Amendment No. 71 dated February 13, 1981. The requirement to address remaining Staff concerns was fully encompassed by the requirements of Appendix R and the results of our evaluation are presented in Section VII. SER open item 3.1.14 dealt with the Staff concern that an explosion in the auxiliary boiler room could affect the emergency diesel generator located in an adjacent room. In Reference (1), the basis for resolution of the license condition requirement for this item was documented. The remaining unresolved aspect of this issue was stated as follows:

"Since it cannot be conclusively demonstrated that the above reinforcement installation results in a blast wall capability to survive a theoretical boiler explosion, NNECO agrees to incorporate the evaluation of such boiler rupture into the scope of the review required by III.G and III.L of Appendix R."

The evaluation has been completed and NNECO's proposed resolution is presented in the discussion section for fire area T-9 which is included in Section VII.

For Millstone Unit No. 2, the applicable SER open items were 3.2.1, Cable Spreading Area, and 3.2.2, Protection of Redundant Cable Trays. Both of these items are discussed in detail in Section VII. In-depth reviews to determine the relative proximity of redundant safe shutdown cables have been completed and appropriate corrective measures have been proposed where necessary. The color-coded drawings provided as Appendix E serve to highlight those instances of current non-conformance to Appendix R separation criteria.

VI COMPLIANCE STATUS SUMMARY

Section VII of these reports consists of the fire zone specific analyses which have been completed. For ease of review, the results of these analyses have been compiled in tabular form and presented as Section VIII. Included in Section VIII is a brief description of the modifications proposed as well as the Appendix R compliance status. An overview of the status is as follows.

	Number of Zones Con- taining Equipment Credited for Safe Shut- down	Number of Zones Which Currently Comply	Number of Zones for Which Com- pliance is Proposed	Number of Zones for Which Exemptions are Requested
Haddam Neck Plant	26	5	6	15
Millstone Unit #1	35	22	6	7
Millstone Unit #2	38	19	7	12
TOTAL	99	46	18	35

In addition, a total of four modifications were identified to be necessary as a result of the associated circuits review. Implementation of these modifications will result in compliance with our interpretation of the associated circuits requirements of Appendix R.

For the total of 35 zones for which alternatives to the requirements of Appendix R have been proposed, CYAPCO and NNECO hereby request exemptions from the requirements of 10CFR50, Appendix R, Section III.G, pursuant to 10CFR50.48(c)(6) and 10CFR50.12(a). The bases for these exemption requests are summarized in Section VII and are supported by the probabilistic risk assessment studies described in Section II and Appendix A.

Regarding the schedule for implementing the proposed modifications, please refer to item IV of this forwarding letter on Section VIII of the reports. Reiterating, pursuant to 10CFR50.48(c)(6) and 10CFR50.12(a), exemptions from the schedular requirements of 10CFR50.48 (c)(2) and (c)(3) are requested for the total of 53 zones for which modifications are proposed pending Commission review and approval or acceptance.

VII CONCLUSION

CYAPCO and NNECO remain fully committed to allocate the necessary resources to respond to fire protection concerns raised by the Staff and effect a timely resolution. Our review of the three facilities using the criteria of Appendix R has revealed numerous instances of non-conformance. Evaluations of the significance of these non-conformances has, in many instances, lead to the conclusion that conformance is not required to provide reasonable assurance that safe shutdown capability will be maintained and public health and safety will be protected. The concept of equivalent protection has been advanced to provide the basis for the exemption requests previously identified.

Another factor which has influenced the philosophy of our approach to Appendix R relates to our design efforts on Millstone Unit No. 3, which is scheduled for commercial operation in 1986. Evaluations are on-going regarding development of the design philosophy which will be used to address Appendix R criteria. Despite the fact that the unit is less than 50% complete from a construction standpoint and that the degree of separation between redundant divisions is far superior to that of our older operating units, achieving literal compliance with Appendix R remains an extremely difficult task. Compliance achieved via the introduction of thousands of electrical isolation contacts raises serious questions regarding the reliability of circuits for which such modifications are deemed necessary.

To achieve compliance, provisions would have to be made to electrically bypass the main control room, instrument rack room, and cable spreading area to establish control and indication at the location of the alternate shutdown panel(s). In order to comply with applicable design criteria, provisions must be made to allow for verification testing necessary to assure that upon return to main control room control, operability of all transferred functions including manual control, diesel generator sequencing, reactor protection system actuation, etc. have been properly restored. The sophistication in test features and circuitry necessary to accommodate all conceivable circumstances is approaching new limits. These new features introduce greater fault potential, the probability for spurious operation is increased, and operator attention is diverted to performance of detailed surveillance requirements at the expense of other safety significant functions. A probabilistic risk assessment oriented evaluation of these additional circuitry complications would likely demonstrate reduced reliability and reduced probability of proper operation because of the thousands of additional components which have a finite statistical probability of failure. It is not clear that overall facility safety is enhanced by design features which are incorporated solely to achieve literal compliance with Appendix R criteria for areas such as the control room, instrument rack room, and cable spreading area. Recognizing that different fire zones have intrinsically different fire hazards, and acknowledging that these are areas where the probability of a damaging fire is small, and noting that Appendix R criteria impose the same requirements on all zones independent of the actual fire hazard, these areas are inherently likely candidates for exemption requests.

An evaluation of the appropriateness of compliance with Appendix R from a broad, overview perspective lends additional credence to the use of the methodology employed in this evaluation. The engineering resource, person-rems, financial, and replacement power expenditures required to achieve literal compliance with Appendix R would be unprecedented. Recently articulated Commission policy, as stated in documents such as:

- o NUREG-0839, a Survey by Senior NRC Management to Obtain Viewpoints on the Safety Impact of Regulatory Activities from Representative Utilities Operating and Constructing Nuclear Power Plants.
- o Draft Charter and Procedures of the Committee to Review Generic Requirements,
- o Proposed Policy Statement on Safety Goals for Nuclear Power Plants, and
- o SECY-82-1, Severe Accident Rulemaking and Related Matters,

suggests that a more rigorous, comprehensive evaluation of proposed extensive backfits will be completed prior to mandating their implementation. Although Appendix R was promulgated prior to the issuance of the above documents, this fact should not exempt Appendix R from a scrupulous review utilizing the guidelines, tools, and recommendations identified in the above documents.

A particularly pertinent excerpt from SECY-82-1 dated January 4, 1982 is as follows:

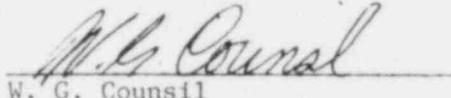
"The impracticalities of further backfits to operating plants in the next few years also lead us to believe that the question of backfits for severe accidents beyond those already mandated, should be deferred for now."

It is our view that a balanced, value/impact oriented evaluation of the attached Fire Protection, Appendix R Reviews will result in Staff concurrence with the proposed response to Appendix R.

With the docketing of this submittal, it is our assertion that the requirements of 10CFR50.48(c)(5) have been fulfilled. We are prepared to interact with the Staff on this issue as required to bring the fire protection issue to a satisfactory resolution.

Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY


W. G. Counsil
Senior Vice President