NORTHEAST UTILITIES

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THE CONNECTICUT LIGHT AND POWER COMPANY
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NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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December 15, 1980

Docket Nos. 50-213
50-245
50-336
A01379

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

References:
(1) D. G. Eisenhut letter to All Licensees of Operating Plants and Applicants for Operating Licenses and Holders of Construction Permits dated October 31, 1980.
(2) W. G. Counsil letter to H. R. Denton dated December 31, 1979.
(3) W. G. Counsil letter to D. G. Eisenhut dated June 10, 1980.
(4) W. G. Counsil letter to D. G. Eisenhut dated September 15, 1980.
(5) W. G. Counsil letter to D. G. Eisenhut dated October 31, 1980.
(6) W. G. Counsil letter to H. R. Denton dated August 15, 1980.
(7) W. G. Counsil letter to D. M. Crutchfield dated May 16, 1980. (Docket No. 50-245)
(8) W. G. Counsil letter to D. G. Eisenhut dated November 28, 1979. (Docket No. 50-336)
(9) D. G. Eisenhut letter to W. G. Counsil dated October 22, 1979. (Docket No. 50-336)
(10) W. G. Counsil letter to D. L. Ziemann dated March 6, 1980. (Docket No. 50-213)
(11) W. G. Counsil letter to B. H. Grier dated July 13, 1979. (Docket No. 50-336)
(12) W. G. Counsil letter to B. H. Grier dated January 18, 1980. (Docket No. 50-245)
(13) W. G. Counsil letter to D. G. Eisenhut dated October 1, 1980.
(14) W. G. Counsil letter to D. M. Crutchfield dated November 14, 1980. (Docket No. 50-213)
(15) W. G. Counsil letter to D. M. Crutchfield dated November 14, 1980. (Docket No. 50-245)
(16) W. G. Counsil letter to R. A. Clark dated November 14, 1980. (Docket No. 50-336)
(17) W. G. Counsil letter to the Secretary of the Commission dated November 17, 1980.
(18) W. G. Counsil letter to H. R. Denton dated April 11, 1980.
(19) D. M. Crutchfield letter to W. G. Counsil dated May 7, 1980. (Docket No. 50-213)
(20) W. G. Counsil letter to D. G. Eisenhut dated October 18, 1979.

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(21) D. L. Ziemann letter to W. G. Counsil dated April 18, 1980. (Docket No. 50-245)
(22) D. G. Eisenhut letter to W. G. Counsil dated May 7, 1980.
(23) W. G. Counsil to D. G. Eisenhut dated January 31, 1980.
(24) R. W. Reid to W. G. Counsil dated February 25, 1980. (Docket No. 50-336)
(25) W. G. Counsil to H. R. Denton dated August 21, 1980.

Gentlemen:

Haddam Neck Plant
Millstone Nuclear Power Station, Unit Nos. 1 and 2
Implementation of NUREG-0737

On October 31, 1980, the NRC Staff forwarded Reference (1), NUREG-0737, which identified in one document all TMI-related actions from NUREG-0660, the TMI Action Plan, that have been specifically approved by the Commission for implementation. The Connecticut Yankee Atomic Power Company (CYAPCO), on behalf of the Haddam Neck Plant, and Northeast Nuclear Energy Company (NNECO), on behalf of Millstone Unit Nos. 1 and 2, were requested to provide, within 45 days of the issuance of Reference (1), confirmation that the implementation dates provided in Reference (1) will be met. For any date that cannot be met, CYAPCO and NNECO were further requested to provide justification for the delay, proposed revised dates, and any planned compensating safety actions during the interim.

Since the issuance of the first TMI-related requirements, CYAPCO and NNECO have periodically provided the Staff with implementation status updates. By the successive docketing of References (2), (3), (4), and (5), CYAPCO and NNECO have attempted to keep the Staff informed of the implementation status of the numerous TMI-related requirements and the potential for unavaidable delays that may prohibit compliance by the required dates. The purpose of this submittal, in a continuation of this periodic update effort, is to provide the Staff with similar information in fulfillment of the Reference (1) request. This update reflects the most recent schedular changes summarized in Reference (1).

CYAPCO and NNECO have expended significant financial resources and utilized already severely strained manpower availability in an attempt to comply with the requirements in conformance with the Staff's recommended implementation schedule. CYAPCO and NNECO have actively participated in the various Owners' Groups and numerous industry forums in their efforts to resolve generic items on a timely basis. In spite of this concerted effort, there remain a number of items in Reference (1) for which implementation by the required dates may be in jeopardy. In the attachment to this letter, CYAPCO and NNECO have identified those items for the Haddam Neck Plant and Millstone Unit Nos. 1 and 2 which will not meet the schedule requirements forwarded in Reference (1) In such instances, a revised schedule and justification for the delay is

provided. CYAPCO and NNECO have also identified those items for which the proposed implementation is not in exact compliance with the clarifications of Reference (1). It should be noted that all of the requirements which are subject to a January 1, 1981 implementation date will be discussed in greater detail in a subsequent submittal which will be docketed prior to the end of 1980.

For items not discussed in the attachment, CYAPCO and NNECO intend to comply with the scope and schedule of Reference (1). Past experience has demonstrated that equipment qualification and delivery delays could impact proposed schedules and thus it is possible that additional items not identified here may not conform with Reference (1). In the event that additional delays should arise, the Staff will be notified to that effect promptly.

We trust you will find this information responsive to your request.

Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

W. G. Counsil
Senior Vice President

STATE OF CONNECTICUT)
) ss. Berlin Dec. 15, 1980
COUNTY OF HARTFORD)

Then personally appeared before me W. G. Counsil, who being duly sworn, did state that he is Senior Vice President of Northeast Nuclear Energy Company, a Licensee herein, that he is authorized to execute and file the foregoing information in the name and on behalf of the Licensees herein and that the statements contained in said information are true and correct to the best of his knowledge and belief.

Sheila M. Oates
Notary Public

My Commission Expires March 31, 1981

STATE OF CONNECTICUT)
) ss. Berlin Dec. 15, 1980
COUNTY OF HARTFORD)

Then personally appeared before me W. G. Counsil, who being duly sworn, did state that he is Senior Vice President of Connecticut Yankee Atomic Power Company, a Licensee herein, that he is authorized to execute and file the foregoing information in the name and on behalf of the Licensees herein and that the statements contained in said information are true and correct to the best of his knowledge and belief.

Sheila M. Oates
Notary Public My Commission Expires March 31, 1981

Docket Nos. 50-213
50-245
50-336

A T T A C H M E N T 1

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

NUREG-0737 Implementation Status

December 15, 1980

1.A.1.3 Shift Manning
Haddam Neck Plant, Millstone Unit Nos. 1 and 2

The implementation schedule forwarded in Reference (1) requires Technical Specification changes commensurate with minimum shift crew requirements to be submitted by November 1, 1980, while the staffing requirements are not required to be implemented until July 1, 1982. CYAPCO and NNECO intend to submit proposed Technical Specification regarding shift manning changes shortly before the required implementation date.

1.A.2.3 Administration of Training Programs
Haddam Neck Plant, Millstone Unit Nos. 1 and 2

CYAPCO and NNECO reiterate the position on instructor qualifications as presented to the Staff in Reference (6). Regarding instructor qualifications, CYAPCO and NNECO require that an SRO licensed instructor review and approve all programs conducted for licensed operator training and retraining. This is in lieu of requiring all training center and facility instructors who teach systems, integrated responses, transients, and simulator courses to demonstrate their competence to NRC by the successful completion of a senior operator examination. While it is the intent to have SRO individuals conduct the major portions of the Operator Training Program, certain non-SRO individuals within the NU system are utilized to teach selected portions of the Operator Training Program. These individuals are often considered to be "experts" in their respective areas, and to deprive the operations personnel of their expertise would diminish the quality of the program. An example of this would be the use of selected individuals from the Nuclear and Safety Analysis Branches to teach selected transients. Additionally, non-safety-related systems such as rad-waste, vacuum priming, etc., would adequately be covered by an R.O. level instructor.

Hence, prior to the lecture, an SRO instructor from the training facility shall review the content of the lecture and approve it. The SRO may add or delete information as is deemed necessary and has the option to conduct any of the additions or the entire lecture. If warranted, the SRO retains the option to attend the lecture to ensure the content is presented in a fashion necessary to suit operators' needs.

1.C.1 Transient and Accident Analysis
Haddam Neck Plant, Millstone Unit Nos. 1 and 2

CYAPCO and NNECO have determined that resolution of this item would be more appropriately handled through the Westinghouse, General Electric, and Combustion Engineering Owners' Groups for the Haddam Neck Plant, Millstone Unit No. 1 and Millstone Unit No. 2. Reanalysis of transients and accidents and inadequate core cooling and preparation of guidelines for development of emergency procedures will be forwarded to the NRC as soon as they become available, in consideration of Owners' Group activities already in progress. CYAPCO and NNECO are unable to commit to a schedule at this time for the Haddam Neck Plant and Millstone Unit No. 1.

On behalf of Millstone Unit No. 2, NNECO has participated in C-E Owners' Group activities conducted since the Three Mile Island accident to develop improved emergency procedure guidelines and associated supporting analyses. The Owners' Group has completed numerous documents which have been submitted to the NRC for review. The Owners' Group is currently sponsoring further activities which will be completed in the first half of 1981 and documented at that time. A summary of results obtained to date and the status of current activities is provided below.

The initial Owners' Group analysis of Inadequate Core Cooling (ICC) is documented in report CEN-117, "Inadequate Core Cooling - A Response to NRC I&E Bulletin 79-06C, Item 6 for Combustion Engineering Nuclear Steam Supply Systems." This report was submitted to the NRC Staff for review on October 31, 1979, by the Owners' Group.

"Operational Guidance for Inadequate Core Cooling" was prepared by the Owners' Group based on the analyses in report CEN-117. This operational guidance was distributed to all members of the Owners' Group for their use in review and possible revision of plant emergency procedures in December, 1979. A copy of this operational guidance was submitted to the NRC Staff for review by the Owners' Group on December 10, 1980.

Since early 1980, the C-E Owners' Group has sponsored an extensive study of instrumentation response characteristics under ICC conditions. This study was described to the NRC Staff at a meeting in Bethesda, Maryland, on May 28, 1980. This study was completed in December, 1980, and its results have been distributed to members of the Owners' Group for their use. NNECO is currently evaluating the results of this study for use in possible revisions to plant emergency procedures. Such revisions would be based upon

determination of the usefulness of specific instrumentation for detection of ICC. This evaluation and subsequent revision of plant emergency procedures as required is expected to be completed by the required date.

The initial Owners' Group analyses of transients and accidents (non-LOCA) is documented in report CEN-128, "Response of Combustion Engineering Nuclear Steam Supply System to Transients and Accidents." This report was submitted to the NRC Staff for review on April 1, 1980. The results in this report show how a typical C-E-designed plant would most likely respond to various event initiators and shows what systems are actuated following each event. The report includes results of plant simulation analyses with digital computer codes to determine transient behavior of pertinent plant process parameters, components, and systems and results of sequence of events analyses performed to identify component and system functions and alternate means to accomplish specified safety functions.

The analyses contained in report CEN-128 consider single active failure for each system called upon to function for a particular event. Passive failures and multiple system failures are not considered. The sequence of events analyses (SEA) show the various paths through an event without probabilistic considerations. Each SEA demonstrates how specified safety functions are satisfied. Sequence of events diagrams (SED) are used to show how these functions are accomplished and include single active failures in each responding system and operator failure to perform manual actions. Consequential failures are considered in the SED for the steam line break.

Since early 1980, the Owners' Group has been conducting a program to develop analyses of transients and accidents involving multiple failures. These analyses were outlined to the NRC Staff in a meeting held in Bethesda, Maryland, on January 31, 1980. These analyses are currently scheduled to be completed in the first quarter of 1981. The results of these analyses will provide one basis for possible revision of emergency procedure guidelines.

The initial Owners' Group development of emergency procedure guidelines was completed in the first quarter of 1980. These emergency procedure guidelines are documented in report CEN-128. This report was submitted to the NRC Staff for review on April 1, 1980.

The emergency procedure guidelines contained in report CEN-128 were prepared based on extensive reviews of existing emergency procedures, past safety and design analyses, the plant simulation and sequence of events analyses in CEN-128, and interviews with operations personnel at plants with operating C-E reactors. These emergency

procedure guidelines were prepared to be used as a basis for reviewing, and revising, if necessary, existing plant emergency procedures.

The NRC Staff in a letter dated July 17, 1980, sent questions to the Owners' Group concerning the emergency procedure guidelines documented in report CEN-128. A meeting was held with the NRC Staff in Bethesda, Maryland, on September 11, 1980, to discuss these questions and answers to them. The Owners' Group is presently preparing answers to these questions and revisions to the emergency procedure guidelines in report CEN-128 as are appropriate. A preliminary response to these questions was submitted by the Owners' Group to the NRC Staff in a letter dated December 10, 1980. The remaining responses will be submitted to the NRC Staff by the Owners' Group in mid-January, 1981.

Since early 1980, the Owners' Group has conducted an extensive evaluation of specific technical characteristics of emergency procedure guidelines. These include; (1) the diagnostic guidance to be provided in emergency procedure guidelines, (2) the need for a separate guideline for inadequate core cooling, and (3) the format for presentation of emergency guidance. This evaluation is currently scheduled to be completed in the first quarter of 1981. The results of this evaluation will serve as one basis for possible revision of emergency procedure guidelines contained in report CEN-128.

The Owners' Group agreed on December 3, 1980, to conduct a series of workshops concerning emergency procedure guidelines in early 1981. These workshops are intended to provide a formal process by which the emergency procedure guidelines documented in report CEN-128 will be revised to account for multiple failure considerations. Input to these workshops will be provided by the analysis and emergency procedure guidelines studies which have been conducted by the Owners' Group since early 1980. The workshops are to be attended by Staff personnel from C-E and from utilities which own C-E reactors. These workshops will also provide the opportunity to explore multiple-failure scenarios beyond those which have been currently identified in the Owners' Group analyses of transients and accidents. LOCA will also be considered in these workshops.

The C-E Owners' Group has initiated an effort to define the process by which plant emergency procedures should be developed or modified using emergency procedure guidelines and supporting analyses. NNECO is participating in this definition process and feels that its completion is necessary before plant emergency procedures are further revised based on revisions to the emergency procedure guidelines. This C-E Owners' Group activity is scheduled to be completed by May 1, 1981.

Following the completion of the studies currently being conducted by the Owners' Group and the emergency procedure guidelines workshops, a revised set of emergency procedure guidelines will be submitted for review to the NRC Staff by the Owners' Group. The Owners' Group has scheduled a meeting with the NRC Staff for January, 1981, in order to discuss the process being used for revision of emergency procedure guidelines. The revised emergency procedure guidelines are currently scheduled to be submitted for review to the NRC Staff by the Owners' Group on June 1, 1981.

Following completion of the NRC review of the revised emergency procedure guidelines and completion of the Owners' Group activities to define the process for development or revision of plant emergency procedures, NNECO will evaluate the need for revision of its plant emergency procedures. The schedule in NUREG-0737 indicates that six months will be required for NRC Staff review and approval and that another six months or more are to be allowed for revision and implementation of emergency procedures. Therefore, NNECO's emergency procedures will be revised as necessary following NRC review and approval of the revised guidelines.

1.C.6 Procedures to Verify Correct Performance of Operating Activities
Haddam Neck Plant, Millstone Unit Nos. 1 and 2

CYAPCO and NNECO object to the requirements of Item 1.C.6 of Reference (1). The requirement to have a second "qualified" operator verify proper system alignment for the return-to-service of equipment important to safety is excessive and is not an improvement to overall plant safety. Non-licensed or auxiliary operator personnel are currently utilized to verify proper system alignments. Independent verifications performed by different auxiliary operators on redundant systems are adequate to assure safe plant operation.

If independent verification of system alignment is necessary, a licensed individual should not be required to perform this task. The level of knowledge required for licensed operators is not compatible with performance of system line-ups. Thus, CYAPCO and NNECO have determined that this requirement is excessive and as such, no further action is planned.

II.B.1

Reactor Coolant System Vents
Haddam Neck Plant, Millstone Unit No. 2

The implementation schedule forwarded via Reference (1) requires procedures for use of the Reactor Coolant System Vent System to be submitted by January 1, 1981. This conflicts with the text of Reference (1) which requires procedures to be submitted by July 1, 1981. CYAPCO and NNECO intend to submit procedures in conformance with the July 1, 1981 requirement.

11.B.2 Plant Shielding Review
Haddam Neck Plant, Millstone Unit Nos. 1 and 2

The Staff was informed via Reference (4) that a new valve would have to be manufactured to implement the modifications identified in Reference (7) for Millstone Unit No. 1. Delivery of the new valve is not expected until May, 1981, which is after start-up from the current refueling outage. The next refueling outage for Millstone Unit No. 1 is currently scheduled for April, 1982. Installation of the subject valve requires a plant shutdown, thus NNECO requests that the implementation schedule be revised to allow completion of this requirement by the next outage of sufficient duration which may not occur until the 1982 refueling outage.

It should also be noted that CYAPCO and NNECO have committed to complete certain modifications by January 1, 1981, at the Haddam Neck Plant and Millstone Unit No. 2, respectively. In light of the revised schedule forwarded in Reference (1), these modifications are not required to be completed until January 1, 1982. Thus, CYAPCO's and NNECO's previous commitments are hereby revised accordingly.

Item 11.B.2 of Reference (1) specifies that the sample analysis area must be considered as a vital area which would require access after an accident. CYAPCO and NNECO have concluded that the sample analysis area need not be considered a vital area since the requirements for post-accident sampling capability at the Haddam Neck Plant and Millstone Unit Nos. 1 and 2 can be met by utilizing the sample laboratory at the site which did not experience the accident.

The dose rate criteria specified in Reference (1) is not well defined. CYAPCO and NNECO have interpreted this to be:

> 5 Rem to the whole body, head and trunk, active blood forming organs, lens of the eye, or gonads.
> 30 Rem to the skin, thyroid, and organs other than those already specified.
> 75 Rem to the hands and forearms, feet and ankles.

The criteria for radiation source terms to be used to determine environmental qualification of safety-related equipment are inconsistent amongst I&E Bulletins 79-01 and 79-01B, NUREG-0578, NUREG-0588, and NUREG-0737. The dose rate calculations used for equipment qualification at the Haddam Neck Plant and at Millstone Unit Nos. 1 and 2 were completed before promulgation of NUREG-0737. The calculations were performed using the criteria specified for the particular situation prior to issuance of NUREG-0737.

The following source terms were used:

Haddam Neck Plant - per NUREG-0588

Inside Containment - 100% of noble gases in atmosphere, 50% of iodines initially in containment atmosphere with time dependent removal by Containment Air Recirculation Filters and plate out, and 50% of iodines and 1% of solid fission products in sump water.

Outside Containment - 50% of iodines and 1% of solid fission products in water which circulates outside containment.

Millstone Unit No. 1 - per NUREG-0588

Inside Containment - Although the NUREG-0588 models are specifically for PWR's, NNECO conservatively assumed 100% of noble gases and 50% of iodines in the containment atmosphere.

Outside Containment - (Same as for Haddam Neck Plant).

Millstone Unit No. 2

Inside Containment - 100% of noble gases and 50% of iodines in containment atmosphere.

Outside Containment - 50% of iodines and 1% of solid fission products in water which circulates outside of containment. Additionally, 100% of the noble gases in circulated water which does not come from a depressurized source.

CYAPCO and NNECO have determined that the source term assumptions obtained per NUREG-0588 are more realistic and more detailed than those given in NUREG-0737 and have concluded that equipment qualified to the calculated doses will perform its intended function under all postulated accident conditions. Therefore, CYAPCO and NNECO do not intend to recalculate equipment doses based on the new source term assumptions given in NUREG-0737.

11.B.3 Post Accident Sampling
Haddam Neck Plant, Millstone Unit Nos. 1 and 2

Item 11.B.3 of Reference (1) requires that installation of the final post-accident sampling systems be completed by January 1, 1982. NNECO has recently been informed by the manufacturer that equipment needed for Millstone Unit No. 1 will not be available before start-up from the current cycle 8 refueling outage. Installation of this equipment cannot be accomplished during operation and no shutdowns are scheduled between start-up from the outage and the implementation date required in Reference (1). Thus NNECO requests that implementation of this requirement be revised to require installation by January 1, 1982 or the next refueling outage. Interim sampling techniques described in Reference (23) will remain in effect until installation of the final system is complete.

CYAPCO intends to comply with this Reference (1) requirement for the Haddam Neck Plant; however, the Staff should be aware that there is the potential for equipment delivery delays which may preclude compliance with the January 1, 1982 implementation requirement. The Haddam Neck Plant is currently scheduled to shut down for refueling in November,1981. If equipment is not available for installation during the upcoming refueling outage, CYAPCO requests that implementation of this requirement be delayed to the 1982 refueling outage. Interim sampling techniques described in Reference (23) will remain in effect until installation of the final sampling system is complete.

Clarification 2 of Item 11.B.3 of Reference (1) requires CYAPCO and NNECO to establish the capability to provide on-site radiological and chemical analysis within a three-hour time frame. CYAPCO and NNECO have determined that if the on-site laboratory at the Haddam Neck Plant or at the Millstone site is uninhabitable or has high background radiation, the analysis could be performed within the three hour-time frame at the site which did not experience the accident.

Clarification 11(b) requires that ventilation exhaust from the sampling station be filtered with charcoal absorbers and HEPA filters. CYAPCO and NNECO have concluded that leakage from the sampling system will be insignificant compared to leakage from RHR and other systems, and thus, filtered ventilation of the sampling station should not be required. CYAPCO and NNECO do not intend to comply with this requirement.

II.D.1 Performance Testing of BWR and PWR Relief and Safety Valves
Haddam Neck Plant, Millstone Unit Nos. 1 and 2

CYAPCO and NNECO intend to comply with the requirements and schedule presented in Reference (1) for the Haddam Neck Plant and Millstone Unit Nos. 1 and 2 in accordance with EPRI and General Electric Boiling Water Reactor Owners Group submittals made to date.

A1.D.3

Direct Indication of Valve Position
Haddam Neck Plant, Millstone Unit Nos. 1 and 2

Reference (2) provided the Staff with a description of the Babcock and Wilcox Acoustic Monitor System which has been installed at the Haddam Neck Plant and Millstone Unit Nos. 1 and 2. Reference (5) informed the Staff that the Babcock and Wilcox system would not be environmentally qualified before April, 1981.

Recent informal discussions between CYAPCO/NNECO and Babcock and Wilcox indicate that completion of the generic environmental qualification of the Acoustic Monitor System has experienced significant delays thus leaving the completion date in jeopardy. CYAPCO and NNECO will keep the Staff advised as to the status of the qualification effort. The installed systems have performed satisfactorily to date.

II.E.1.1 Auxiliary Feedwater System Evaluation
Millstone Unit No. 2

The Staff was provided with Reference (8) in response to Additional Long Term Recommendation GL-3 of Reference (9). In Reference (8), NNECO committed to make one auxiliary feedwater flow train at Millstone Unit No. 2 independent of alternating current for a period of two hours by January 1, 1981. To accomplish this, NNECO intended to install air operators on the auxiliary feedwater control valves and the auxiliary feedwater turbine steam admission valves. The new air operators are not scheduled to be delivered until June, 1981, thus precluding compliance with this Reference (9) requirement by January 1, 1981. NNECO intends to complete installation of the new operators by January 1, 1982, in conformance with the most recent schedular changes forwarded in Reference (1).

11.E.1.2 Automatic Initiation of Auxiliary Feedwater
Haddam Neck Plant

Reference (1) requires that a safety-grade system for automatic initiation of auxiliary feedwater be installed at the Haddam Neck Plant by July 1, 1981. Installation of the safety-grade components cannot be accomplished during plant operation, CYAPCO requests that installation of the safety-grade system be delayed until the next refueling outage, currently scheduled for November, 1981.

Should installation of the safety-grade system be required by July 1, most of the work required to install the safety-grade system would be installed during plant operation. This is undesirable from the point of view of having personnel working on or near energized circuits. These circuits may be de-energized during shutdown. In addition, there is a greater probability of a spurious reactor trip or unexpected event while personnel are working on energized circuitry.

It is highly desirable that in order to minimize radiation exposures to personnel installing, maintaining, or calibrating the new instrument transmitters, that these transmitters be located in a certain portion of the containment annulus. However, to achieve this benefit it is necessary that work be performed in the loop areas which are not accessible during plant operation. Therefore, given the accessibility to the loop areas inherent in a refueling outage, a better scheme, which will minimize personnel exposures, can be installed.

Human engineering requirements require that space on the main control board now used for the control-grade scheme should be utilized for the safety-grade scheme. Therefore, a lapse in the availability of an automatic scheme for initiating AFW can be avoided by waiting to the refueling outage to install the safety-grade scheme.

There is currently installed at the Haddam Neck Plant a control-grade scheme for automatic initiation of AFW. This scheme is currently defeated pending the Staff's safety evaluation. Should the control-grade scheme receive a favorable safety evaluation, it will be made operable. Either this scheme or the operator's ability to manually initiate AFW assures its availability as required. Thus, CYAPCO requests that this requirement be delayed until the 1981 refueling outage. In the event this position is not acceptable, CYAPCO requests prompt notification.

11.E.4.1 Dedicated Hydrogen Penetrations
Haddam Neck Plant

Clarification (4) of Item 11.E.4.1 of Reference (1) states that the positions taken in SECY-80-399, "Proposed Interim Amendments to 10CFR Part 50 Related to Hydrogen Control and Certain Degraded Core Considerations," would require plants that do not now have recombiners to have the capability to install external recombiners by January 1, 1982. In Reference (17), CYAPCO dissented on inclusion of this requirement in the proposed rulemaking.

In References (2) and (18), the NRC was provided with a description of how the Haddam Neck Plant met the intended requirement of Item 2.1.5a of NUREG-0578. CYAPCO received a favorable Safety Evaluation for use of purge systems as a means of combustible gas control via Reference (19). It should be noted that the requirement to have the capability to install exterral hydrogen recombiners was a minority opinion of the Lessons Learned Task Force. Codification of section 50.44(c)(3)(iv) of the proposed rulemaking would mandate additional requirements in an area where mutual agreement had previously been reached.

The NRC's Value-Impact analysis associated with SECY-80-399 estimates costs for installing hydrogen recombiner capability to be on the order of $100,000 per plant. CYAPCO strongly disagrees with this estimate and has concluded that costs associated with this would most likely be at least an order of magnitude higher. Construction of a recombiner structure with appropriate shielding, penetration, and electrical equipment along with the development of procedural guidance would require expenditure of resources far in excess of the NRC's estimate.

Should this eventually become a requirement, CYAPCO will not be able to comply in conformance with the January 1, 1982 date given in Reference (1).

11.F.1.1 Noble Gas Effluent Monitor
Haddam Neck Plant, Millstone Unit Nos. 1 and 2

NNECO, for Millstone Unit No. 2, intends to comply with the implementation schedule forwarded in Reference (1) for the Noble Gas Effluent Monitor with the following deviation. Sampling in the vent-stack for the high-range effluent monitor will be in accordance with ANSI N13.1-1969 as much as possible. Because of the presence of existing nozzles and the physical geometry of the vent-stack, the new nozzles will be two to three stack diameters down stream of a bend in the vent-stack instead of the recommended five diameters.

CYAPCO and NNECO have concluded that the procedures to detect and measure concentrations of noble gas fission products in plant gasous effluents from steam safety-valve and atmospheric dump valve discharge points during and following an accident, as described in References (2) and (23), are adequate to fulfill the intent of Clarification 3 to Item 11.F.1.1 of Reference (1). The procedures and equipment for quantification of noble gas effluents received favorable Staff Safety Evaluations in References (19) and (24), thus no further action is planned.

The design basis maximum range for the monitors for the Haddam Neck Plant and Millstone Unit Nos. 1 and 2 is 10^4 uCi/cc. CYAPCO and NNECO have concluded that the requirement to calibrate the detectors to Xe-133 equivalence is inappropriate since the dose conversion factors used for the plume do not assume a pure mixture of Xe-133. The monitors will be calibrated to appropriate gas mixtures to ensure consistency with the calculational procedures used for dose assessments. The monitor displays will be in counts per minute or MR/hr with appropriate conversion factors for conversion to uCi/cc.

For the Design Basis Maximum Range of 10^5 uCi/cc, references to drywell purge and condenser air exhaust should apply to BWR's only.

The monitor to be installed at the Haddam Neck Plant will conform to the requirements of Reference (1).

11.F.1.2 Sampling and Analysis of Plant Effluents
Haddam Neck Plant, Millstone Unit Nos. 1 and 2

Reference (1) requires sampling systems to have flow control devices with the capability of maintaining isokinetic conditions with variations in stack or duct design velocity of ± 20%. The isokinetic nozzles used at Millstone Unit Nos. 1 and 2 are designed to sample isokinetically at a specified nozzle flow rate, only. These systems do not have flow control devices. Effluent release velocity during an accident would be much less than the normal release velocity for which the nozzles are designed. Furthermore, NUREG-0737 states that departures in effluent velocity greater than ± 20% of the design flow need not be considered in the design. The new high-range sampling systems are based upon the specified normal flow rates, and any departures from isokinetic conditions can be corrected analytically as described in Appendix C of ANSI N13.1-1969. The system design will meet ANSI N13.1-1969 as much as possible, depending upon existing effluent radiation monitors and the physical plant.

CYAPCO and NNECO reiterate the fact that analysis capabilities need not be on site due to the existence of the alternate site which did not experience the accident.

11.F.1.3

Containment High-Range Radiation Monitor
Haddam Neck Plant, Millstone Unit Nos. 1 and 2

Reference (1) states that "in-situ calibration by electronic signal substitution is acceptable for all range decades above 10 R/hr. In-situ calibration for at least one decade below 10 R/hr shall be by means of calibrated radiation source."

In-situ calibration by electronic signal substitution at the detector is not feasible or necessary for the following reasons:

1. Cable connections to detectors in containment are environmentally sealed and are not designed to be disassembled on a regular basis.

2. The required in-situ calibration for one decade below 10 R/hr by means of a calibrated radiation source will serve to functionally check the detector and the cables from the detectors to the indicating modules in the control room.

For the above reasons, NNECO intends to perform calibration by electronic signal substitution of the indicating module in the instrument calibration facility rather than in-situ.

Section 11.F.1.3 of Reference (1) also requires that prior to initial use, each detector must be calibrated to at least one point per decade of range between 1 R/hr and 10^3 R/hr by means of a calibrated radiation source. The detectors already installed at Millstone Unit No. 2 have been calibrated at the manufacturers facility for 35 R/hr. Since NNECO does not possess a portable calibration source over 100 R and in-situ testing as indicated above is not possible, NNECO will not meet the NRC calibration requirements for the Millstone Unit No. 2 detectors.

II.F.1.4 Containment Pressure

Haddam Neck Plant, Millstone Unit Nos. 1 and 2

CYAPCO and NNECO intend to have containment pressure transmitters installed and operational at the Haddam Neck Plant and at Millstone Unit Nos. 1 and 2 by January 1, 1982. CYAPCO and NNECO have been unable to procure fully qualified transmitters. The transmitters to be installed at the Haddam Neck Plant and at Millstone Unit No. 2 are qualified to IEEE 323-1971 and IEEE 344-1971. Transmitters for use at Millstone Unit No. 1 are qualified to IEEE 344-1975 and IEEE 323-1971. Transmitters fully qualified to IEEE 323-1974 and IEEE 344-1975 are not presently available.

11.F.1.5 Containment Water Level Monitor

Haddam Neck Plant, Millstone Unit Nos. 1 and 2

Reference (1) requires that a continuous indication of containment water level be provided in the control room. For the Haddam Neck Plant and Millstone Unit No. 2, a narrow-range instrument is required to cover the range from the bottom to the top of the containment sump, and a wide-range instrument is required to cover the range from the containment floor to the elevation equivalent to a 600,000 gallon capacity. Millstone Unit No. 1 is required to install a wide-range instrument to measure water level from the bottom of the suppression pool to 5 feet above normal water level.

CYAPCO intends to have redundant wide-range level instruments installed and operable by January 1, 1982 at the Haddam Neck Plant. There is currently installed at the Haddam Neck Plant a narrow-range level indication for the containment sump which was addressed in Reference (10). The deviation from Staff requirements currently planned is to not upgrade the narrow-range containment water level instrument to the requirements of Regulatory Guide 1.89 as required by Clarification (1) to item 11.F.1.5 of Reference (1).

During previous outages, measurements indicated that radiation levels in the sump were in the range of 25R/hr and in the range of .5R/hr on the lowest level of containment in the vicinity of the sump. The installation of a qualified instrument in the sump is estimated to require approximately 120 man hours, thereby resulting in a very significant man-rem expenditure. In addition, the sump at the Haddam Neck Plant has a capacity of only about 2,000 gallons and thus during any postulated loss-of-coolant accident, would be filled very rapidly.

The rationale for CYAPCO's decision not to install a narrow range sump level indication which conforms to Regulatory Guide 1.89 may be summarized as follows:

(1) Significant man-rem expenditures would be required to install a qualified instrument.

(2) The capacity of the existing sump is small, only 2,000 gallons; during accident conditions, it would become full relatively early in any loss-of-coolant scenario.

(3) During power operation, the existing narrow-range instrument is normally on-scale; its reliability has been demonstrated by many years of successful operation.

(4) This existing instrument is calibrated once per refueling outage in accordance with Technical Specifications.

(5) The existing transmitter is provided with semi-vital power, via MCC-5, and is backed up by the on-site emergency diesel generators.

(6) The redundant, qualified, wide-range instruments will be on-scale as soon as the narrow-range instrument indicates maximum level.

Likewise, there is presently installed at Millstone Unit No. 2 a narrow-range sump level monitoring device which is not qualified to Regulatory Guide 1.89. NNECO has concluded that the significant man-rem exposures that would result justify the decision not to install a qualified narrow-range level instrument. NNECO intends to install redundant wide-range instruments, properly qualified, at Millstone Unit No. 2 by January 1, 1982.

The existing narrow-range sump level indication in conjunction with other methods for detecting primary system leakage discussed in Reference (11) such as containment low-range pressure, temperature, and dew point, provide adequate justification for NNECO's position

NNECO intends to have a wide-range level instrument installed and operational at Millstone Unit No. 1 by January 1, 1982. NNECO has been unable, however, to procure fully qualified transmitters. Transmitters for use at Millstone Unit No. 1 are qualified to IEEE 344-1975 and IEEE 323-1971. Transmitters fully qualified to IEEE 323-1974 and IEEE 344-1975 are not presently available.

It is also noted that the above position on the narrow-range sumps was discussed with cognizant members of the Staff prior to the docketing of Reference (10). Subsequent verbal discussions have led CYAPCO and NNECO to conclude that their position was, in fact, acceptable. Any further changes in the Staff's position would result in significant difficulties and delays in procuring the necessary qualified equipment.

11.F.1.6 Containment Hydrogen Monitor
Haddam Neck Plant, Millstone Unit Nos. 1 and 2

Reference (1) requires that a continuous indication of hydrogen concentration in the containment atmosphere be provided in the control room. CYAPCO and NNECO intend to comply with this requirement for the Haddam Neck Plant and Millstone Unit Nos. 1 and 2, respectively, by January 1, 1982 to the extent possible considering equipment delivery and other constraints. Millstone Unit No. 2 currently has a hydrogen monitor system as described in FSAR Sections 6.6.2.1 and 7.5.1.4 which has been modified to provide hydrogen concentration indication from 0 to 10%. The Staff should be informed that the existing hydrogen analyzer at Millstone Unit No. 2 does not conform to the qualification requirements of Reference (1) in their entirety; however, NNECO has determined that the existing system is adequate to meet the intent of item 11.F.1.6 of Reference (1). The costs associated with replacing the existing system with a fully qualified system would not be justified in terms of increased plant safety, thus, NNECO does not intend to replace the existing system described in the Millstone Unit No. 2 FSAR.

Item 11.F.1.6 of Reference (1) requires that "The accuracy and placement of the hydrogen monitors shall be provided and justified to be adequate for their intended function." NUREG/CR-1575, "Hydrogen Mixing in a Closed Containment Compartment Based on One-Dimensional Model with Convective Effects," states that the maximum hydrogen concentration difference between locations of the compartment never exceeds 0.25 volume percent if mixing is due to molecular and eddy diffusion and natural convection. Thus, CYAPCO and NNECO have concluded that sampling from two locations, such as near the pressurizer relief tank and near the intake of the Containment Air Recirculation fans for a PWR, is sufficient. This interpretation was detailed to the Staff in Reference (13).

11.F.2 Instrumentation for Detection of Inadequate Core Cooling
Haddam Neck Plant, Millstone Unit Nos. 1 and 2

Reference (25) provided the NRC with CYAPCO's and NNECO's position as it relates to the instrumentation for detection of Inadequate Core Cooling (ICC). CYAPCO and NNECO advised the NRC that existing instrumentation at the Haddam Neck Plant and at Millstone Unit No. 2 is adequate for the detection of ICC.

CYAPCO and NNECO have been closely following the development of Reactor Vessel Water Level Systems by various vendors for their potential installation at the Haddam Neck Plant and at Millstone Unit No. 2. CYAPCO and NNECO have concluded that a reliable, unambiguous indication of water level in the reactor vessel would indeed be a useful tool for the operator in detection of inadequate core cooling and thus would enhance plant safety.

CYAPCO and NNECO are investigating the installation of a Reactor Vessel Water Level Systems at the Haddam Neck Plant and at Millstone Unit No. 2 if it is adequately demonstrated that such a system in conjunction with other available plant parameters will provide the operator with an unambiguous indication of ICC during all transient and accident conditions. Reference (1) requires installation of additional instrumentation by January 1, 1982. CYAPCO and NNECO have determined that a Reactor Vessel Water Level System, once proven reliable, cannot be installed in conformance with the Reference (1) schedule. Lead time for delivery of one such system is estimated to be at least 14 months. Additional testing must also be done to ensure that the potential for misleading the operator is extremely low before CYAPCO and NNECO can commit to installation of a level monitoring device. CYAPCO and NNECO have determined that it is inappropriate to commit to a schedule for installation of additional instrumentation until it is proven that such a system will provide an unambiguous indication of Inadequate Core Cooling.

NNECO has determined that the instrumentation presently installed at Millstone Unit No. 1 is adequate to fulfill the intent of this Reference (1) requirement and, as such, no further action is planned.

II.K.2.13	Thermal Mechanical Report
II.K.2.17	Voiding in the Reactor Coolant System
II.K.2.19	Benchmark Analysis of Sequential Auxiliary Feedwater Flow Haddam Neck Plant, Millstone Unit No. 2

These items were originally issued as requirements for Babcock and Wilcox Nuclear Steam Supply Systems only. In Reference (1), these requirements were modified to apply to Westinghouse and Combustion Engineering systems. These requirements are being pursued by CYAPCO and NNECO through the Westinghouse and Combustion Engineering Owners Groups for the Haddam Neck Plant and Millstone Unit No. 2, respectively. Results of these analyses will be forwarded to the NRC as soon as they are available in consideration of Owners Group activities already in progress. CYAPCO and NNECO have determined that it would be inappropriate to commit to a schedule at this time.

11.K.3.2 Report on PORV Failures
Haddam Neck Plant, Millstone Unit No. 2

CYAPCO has determined that this requirement would be more appropriately handled through the Westinghouse Owners Group for the Haddam Neck Plant. Reference (1) requires a report on PORV Failures to be submitted for Staff review by January 1, 1981.

The Westinghouse Owners Group is developing a report, including historical valve failure rate data and documentation of actions taken since the TMI incident to decrease the probability of a stuck-open PORV, which will adequately address the concerns of item 11.K.3.2. This report is currently scheduled for submittal to the NRC on March 1, 1981 and thus will not meet the schedular requirement of Reference (1).

For Millstone Unit No. 2, this item will be handled on a generic basis through the Combustion Engineering Owners' Group. NNECO has recently received a generic report in draft form from the Owners' Group and is reviewing the report for its plant-specific applicability to Millstone Unit No. 2. NNECO intends to comply with this requirement by January 1, 1981 to the extent possible considering the constraints discussed in the forwarding letter.

11.K.3.5 Automatic Trip of Reactor Coolant Pumps During LOCA
Haddam Neck Plant, Millstone Unit No. 2

Implementation of this requirement has been deferred by the NRC pending completion of the LOFT test L3-6 blind post-test analyses to determine the criteria and necessity for early reactor coolant pump trip. CYAPCO and NNECO are pursuing this item through the Westinghouse and Combustion Engineering Owners' Groups for the Haddam Neck Plant and Millstone Unit No. 2, respectively. Resolution of this item will be on a schedule proposed by the Owners' Groups, in consideration of other Owners' Group activities already in progress. Committing to installation of a reactor coolant pump trip system is inappropriate at this time.

11.K.3.14 Isolation of Isolation Condenser on High Radiation. Millstone Unit No. 1

NNECO reiterates its position as noted to the Staff in References (3) and (5) that automatic isolation of the Isolation Condenser System is inappropriate; and, as such, NNECO does not intend to comply with this requirement.

The Millstone Unit No. 1 isolation condenser system design does not presently automatically isolate on high radiation in the steam line nor does it monitor radiation at that point. Millstone Unit No. 1 presently monitors the isolation condenser atmospheric vent with a gross gamma detector with procedural provisions for manual system isolation should the monitor indicate high activity and the operator determine that continued operation of the isolation condenser system is not necessary for a safe and orderly plant shutdown. NNECO concludes that this scheme allows the operator the greatest amount of flexibility and system availability to facilitate coping with all anticipated and unanticipated operational transients. It is noted in addition to the above, NNECO submits that implementation of this requirement would be counterproductive to the intent of the study required by Item 11.K.3.16.

NNECO's position on this item was originally provided to the Staff in References (3) and (5). Due to the absence of a Staff reply on this matter, NNECO has concluded that this is an acceptable position.

11.K.3.25 Effect of Loss of Power on Pump Seals
Haddam Neck Plant, Millstone Unit Nos. 1 and 2

CYAPCO and NNECO intend to determine the consequences of a loss of alternating current power and loss of cooling water to the reactor coolant pump seal coolers for the Haddam Neck Plant and Millstone Unit No. 2. Reference (1) requires that any proposed modifications be submitted by January 1, 1982. CYAPCO and NNECO will pursue completion of this item in conformance with the Reference (1) schedule but have determined that it would be inappropriate to commit to a schedule at this time.

For Millstone Unit No. 1, the analysis to ascertain the effect of loss of AC power on the cooling of the Reactor Recirculation pump seals is being pursued by NNECO through the General Electric BWR Owners' Group on a generic basis. Results of this analysis will be forwarded to the NRC as soon as they are available in consideration of Owners' Group activities already in progress.

11.K.3.27 Common Reference Level for Vessel Level Instrumentation
Millstone Unit No. 1

Via References (1) and (22), the Staff required that Boiling Water Reactor vessel water level instruments all be referenced to the same point. The General Electric BWR Owners' Group has performed a study on the proposed modification, the results of which have recently been made available to NNECO in draft form. NNECO has concluded that the Owners' Group study presents substantive arguments against modifying the various level instruments to index the same reference point. Thus, NNECO has determined that any modifications to the existing system would be inappropriate and no further action is planned. This supersedes the information on this item forwarded to the Staff in Reference (3). NNECO intends to submit the Owners' Group study on or before January 1, 1981.

11.K.3.28 Qualification of ADS Accumulators
Millstone Unit No. 1

NNECO reiterates its Reference (3) position which concluded that accumulators for the ADS Valves are qualified for post-accident environment conditions.

In Reference (12) NNECO responded to the NRC concerns outlined in I&E Bulletin 80-01. In this submittal NNECO had supplied documentation stating that air supply to the ADS Valves is qualified for post-accident operation from its source (bottled air supply system) through the accumulator to the ADS Valves. The subject I&E Bulletin was comprehensively addressed by NNECO in Reference (12), and, as such, no further action is planned.

11.K.3.29 Study to Demonstrate Performance of Isolation Condensers With Non-Condensibles
Millstone Unit No. 1

Information demonstrating the performance of Isolation Condensers with non-condensibles present was provided by NNECO in Reference (20) and received Staff approval via Reference (21). As such, no further action by NNECO is planned. This was noted to the Staff in Reference (3) but NNECO has yet to receive a Staff acknowledgement.

11.K.3.30 Revised Small-Break LOCA Models
Haddam Neck Plant, Millstone Unit Nos. 1 and 2

NNECO has determined that this requirement would be more appropriately handled through the NSSS vendor/fuel supplier for Millstone Unit No. 1 and through the fuel supplier for Millstone Unit No. 2. This was the subject of previous correspondence in References (15) and (16).

In assessing the applicability of Item 11.3.K.30 to the Haddam Neck Plant, CYAPCO notes that NUREG-0737 specifies that the subject requirement applies to all operating reactors. However, the current licensing basis for the Haddam Neck Plant regarding ECCS performance are the IAC. The plant is therefore not in conformance to 10CFR50.46 and Appendix K to 10CFR50. This matter was brought to the attention of the NRC Staff members present during the September 22, 1980 meeting in Washington, D.C. regarding clarification of the September 5, 1980 letter from D. G. Eisenhut.

Nonetheless, in recognization of the desirability of improved analytical methodology regarding small-break LOCA calculations, CYAPCO has initiated an in-house effort to develop the necessary analytical capability. This alternative has been judged to be superior to that of contracting this task to an NSSS vender or a consultant, due to unique characteristics of the Haddam Neck Plant. Furthermore, this approach is consistent with CYAPCO's philosophy of increasing the level of in-house capability to support the operation of nuclear plants within the NU system.

The proposed evaluation model will consist of a transient thermal hydraulic blowdown code for the purpose of determining the thermal and hydraulic behavior of the Haddam Neck Plant Nuclear Steam Supply System (NSSS) following a postulated LOCA, a fuel rod temperature code to evaluate the hot rod thermal behavior during the transient, and a fuel performance code to provide the appropriate fuel rod initial conditions for use as input to the above blowdown and transient temperature codes. Each of the codes will be documented in a separate topical report along with an additional topical report to describe the calculative methods employed when exercising the code methodologies comprising the small-break LOCA ECCS evaluation model.

Appendix K to 10CFR50 and 10CFR50.46 define the modeling features and requirements appropriate to ECCS evaluation models. Since Appendix K pertains to pressurized light water nuclear power reactors with cylindrical Zircaloy cladding, Appendix K in its' entirety is not applicable to ECCS evaluations of the Haddam

Neck Plant since this plant utilizes nuclear fuel clad in stainless steel. Nonetheless, CYAPCO still intends to develop a small-break LOCA ECCS evaluation model which will address only those features and requirements which do not pertain to the alloy used for the nuclear fuel cladding. A notable exception to the use of Appendix K is the required use of the Baker-Just rate equation for the metal-water reaction. Those items where exception is taken will be identified and documented in detail in the forthcoming topical reports describing the ECCS evaluation model for the Haddam Neck Plant.

Presently, CYAPCO is evaluating the RELAP4-MOD6 thermal hydraulic blowdown code developed at EG&G, with plans to also evaluate the RELAP5-MOD1 when this code becomes available. Since these codes, particularly RELAP4-MOD6, were developed with emphasis on transients characterized by rapid depressurization rates, the codes are not appropriate for use in analyzing the small break LOCA without considerable coding modifications. Areas of particular importance in the blowdown hydraulics modeling include development of a transient phase separation model, improvements to the primary and secondary heat transfer and fluid models with emphasis on fluid distribution and condensation heat transfer in the presence of non-condensible gases, non-equilibrium effects on system depressurization and fluid behavior, main coolant pump modeling with and without the pumps operating, and countercurrent flow and flooding phenomena. The RELAP5-MOD1 code is of particular interest since this methodology accommodates non-equilibrium effects. Choice of the appropriate blowdown code (either RELAP4-MOD6 or RELAP5-MOD1) will depend on the adequacy of the above described models and the conduciveness of the particular methodology to be modified without considerable effort.

In evaluating the hot rod transient temperature response, the FRAP-T5 code will be evaluated since this is the latest available version. FRAP-T6 will also be investigated when this code becomes available. The choice of FRAP as a transient temperature code is based, in part, on the fact that this series of codes is compatible with the heat transfer methodologies contained in the RELAP series of blowdown codes. The adequacy of the FRAP-T5 code to accommodate forced convection and pool boiling modes of heat transfer will be assessed. Since the FRAP series of codes pertains mostly to transient heat transfer with emphasis on forced convection heat transfer, a new transient temperature methodology to accommodate pool boiling heat transfer during the

period of core uncovery will be developed.

The fuel performance code to be evaluated includes FRAPCON-I. FRAPCON-II will also be investigated when this code becomes available. The FRAPCON series of codes were chosen for evaluation since these methodologies are also compatible with both the RELAP and FRAP codes. Moreover, choice of a RELAP, FRAP, and FRAPCON set of codes with appropriate modifications, will represent a consistent set of methodologies, compatible in heat transfer and rod thermal models with input and output linking to form an evaluation model for small-break LOCA analyses. The compatibility of these codes is particularly desirable since this feature should minimize the overall code modification efforts.

Upon completion of the blowdown, temperature, and fuel performance code development efforts, a separate topical report will be prepared to describe the calculative methods employed in utilizing the evaluation model. This separate report will contain a description of code input parameters, modeling techniques, sensitivity studies, and comparisons of the various code predictions with experimental data where available.

Since Appendix K is not applicable to the Haddam Neck Plant NSSS as discussed above, additional developmental activities beyond those required for NSSS's utilizing Zircaloy clad fuels are necessary to develop an appropriate evaluation model. As a consequence of the additional effort necessary, the scheduled completion date for submittal of the small-break LOCA evaluation model for the Haddam Neck Plant is approximately November 1, 1982. A break spectrum analysis using the new methodology is scheduled for approximately November 1, 1983.

While this schedule proposes a delay beyond that identified in Reference (1), CYAPCO concludes that this delay is justified on the basis that Appendix K is not applicable to the Haddam Neck Plant because of the different alloy used for the fuel cladding. Because of this difference, significant modifications and development efforts are necessary to comply with the intent of Item II.3.K.30.

CYAPCO remains available to discuss in more detail the developmental activities related to the small-break LOCA ECCS evaluation model effort. Specifically, CYAPCO proposes to conduct a meeting with the Staff during January 1981 to initiate periodic discussions to ensure that Staff-approved models will be developed. It is CYAPCO's intention that the above discussion, coupled with the technical information exchange planned for the January 1981

meeting, will serve as the basis for written Staff concurrence with the above plans and schedules. Written concurrence from the Staff early in 1981 is necessary in light of the unique situation of the Haddam Neck Plant regarding the interpretation of Item II.K.3.30.

It is noted that CYAPCO's original response to this item was provided in Reference (14).

III.A.2 Emergency Preparedness
Haddam Neck Plant, Millstone Unit Nos. 1 and 2

Pursuant to 10CFR50.54(s), the implementation of upgraded emergency response plans is required by April 1, 1981. However, Item III.A.2.1 in Enclosure 1, page 1-11, indicates implementation is required by March 1, 1981. CYAPCO and NNECO presume that implementation by April 1, 1981 is the appropriate requirement.

Enclosure 3, pages 3-187 through 3-192, references NUREG-0654, Revision 1, as the document which provides criteria (i.e. meteorological) for emergency preparedness. However, NUREG-0654, Revision 1, has not yet been issued formally to operating licensees; therefore, CYAPCO and NNECO are unable to commit to compliance with Item III.A.2 until the subject document is received and is reviewed for feasibility of implementation of the requirements.

Compliance with NUREG-0654, Revision 1, will be addressed in the January 2, 1981 submittal of the emergency response plans, to the extent possible by that date.

III.D.3.4 Control Room Habitability
Haddam Neck Plant, Millstone Unit Nos. 1 and 2

Section III.D.3.4 of Reference (1) requires that CYAPCO and NNECO submit a substantial amount of data regarding control room parameters and requested submittal of proposed control room modifications which will permit control room operators to remain in the control room under all postulated conditions for the Haddam Neck Plant and Millstone Unit Nos. 1 and 2.

CYAPCO and NNECO will not respond fully regarding the toxic gas analyses for the Haddam Neck Plant and Millstone Unit Nos. 1 and 2 by January 1, 1981. In addition, system design modifications required for compliance with control room habitability requirements will only be available in a conceptual form by January 1, 1981 as CYAPCO and NNECO have concluded that it would be inappropriate to commit to detailed and specific control room design modifications before the toxic gas analyses have been completed. In addition, verificatory dose analyses will be performed subsequent to the development of the detailed design changes.