



# CONNECTICUT YANKEE ATOMIC POWER COMPANY

HADDAM NECK PLANT  
362 INJUN HOLLOW ROAD • EAST HAMPTON, CT 06424-3099

May 30, 1997

Docket No. 50-213  
CY-97-047

Re: 10CFR50.12  
10CFR50.54

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555

Haddam Neck Plant  
Defueled Emergency Plan And  
Request For Exemption From 10CFR50.54(q) For Offsite Response

## Introduction

The purpose of this letter is for the Connecticut Yankee Atomic Power Company (CYAPCO) to request an exemption from 10CFR50.54(q) and submit the proposed Haddam Neck Plant (HNP) Defueled Emergency Plan.

## Background

In a letter dated December 5, 1996,<sup>(1)</sup> CYAPCO informed the NRC that the Board of Directors of CYAPCO had decided to permanently cease operations at the HNP and that the fuel had been permanently removed from the reactor.

With this change in plant condition, CYAPCO submits the attached proposed HNP Defueled Emergency Plan (Attachment 1). The proposed plan specifically reflects the fact that the permanently shutdown and defueled condition poses a substantially reduced potential risk to the public health and safety. In view of this reduced risk, certain requirements of 10CFR50.47(b) and 10CFR50, Appendix E are much more restrictive than necessary for the HNP.

Therefore, CYAPCO also submits a request for exemption from 10CFR50.54(q) that requires emergency plans be maintained to meet the standards of 10CFR50.47(b) and 10CFR50, Appendix E.

- (1) T. C. Feigenbaum letter to the U. S. Nuclear Regulatory Commission, "Certifications Of Permanent Cessation Of Power Operation And That Fuel Has Been Permanently Removed From The Reactor," dated December 5, 1996.



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### **Exemption Request**

CYAPCO hereby requests an exemption from 10CFR50.54(q) which states the following:

"A licensee authorized to possess and operate a nuclear power reactor shall follow and maintain in effect emergency plans which meet the standards in § 50.47(b) and the requirements in Appendix E of this part."

10CFR50.47(b), which is incorporated by reference in 10CFR50.54(q), provides that both off-site and on-site emergency plans must meet the standards specified in subparagraphs (1) through (16). 10CFR50, Appendix E further identifies the required content of the plans.

An exemption from 10CFR50.54(q) would allow CYAPCO to discontinue off-site planning activities and reduce the scope of its on-site response. The request is a result of the permanent cessation of power operations at the HNP, and thus, the substantially reduced potential risks associated with a permanently shutdown and defueled condition.

### **Discussion**

The plant was shutdown on July 22, 1996. There are 1019 fuel assemblies in the spent fuel pool, of which 161 are zircaloy clad and 858 are stainless steel clad. Except for I-125 (half-life ~59.5 days), I-129 (half-life ~1.6E7 years), and Kr-85 (half-life ~10.8 years), the spent fuel inventory of the dose-contributing radioactive iodine and noble gas isotopes has decayed more than 20 half-lives since shutdown (i.e., less than 0.0001% of the original amount remains). In addition, the definition for "Dose Equivalent I-131" ("Standard Technical Specifications, Westinghouse Plants," NUREG-1431) does not include I-125 and I-129 in the dose assessment due to their negligible spent fuel inventory. Except for Kr-85, the other noble gas nuclides that contribute to a whole body dose have also decayed to a negligible amount. CYAPCO has performed resin handling and fuel handling accident dose calculations which conclude that doses (i.e., whole body and thyroid) at the Exclusion Area Boundary and the Low Population Zone are a small fraction of the 10CFR100 dose limits, and therefore, would not pose any threat to the health and safety of the public. Doses will not exceed the Environmental Protection Agency (EPA) Protective Action Guides (PAGs).

10CFR50.54(w)(2)(i) defines "accident" as "an event that involves the release of radioactive material from its intended place of confinement within the reactor or on the reactor station site such that there is a present danger of release off site in amounts that would pose a threat to the public health and safety." NUREG/CR-2601, "Technology, Safety, and Costs of Decommissioning, Reference Light-Water Reactors following Postulated Accidents," identifies the kind of accidents that meet the 10CFR definition. Accidents defined by 10CFR50.54(w)(2)(i) and as identified by

NUREG/CR-2601 can no longer occur at the HNP. With the HNP in a permanently shutdown and defueled condition, the two postulated design basis events that can potentially occur are resin handling and fuel handling accidents. However, this design basis event cannot lead to the release of radioactive materials beyond the current Exclusion Area Boundary in quantities that would require any off-site Federal, State, or local plume exposure pathway protective action (i.e., doses will not exceed the EPA PAGs). Therefore, an Alert would be the highest attainable emergency classification level appropriate to the HNP in the permanently shutdown and defueled condition.

In view of the above, the present HNP Emergency Plan contains requirements in excess of those necessary to support emergency preparedness with the HNP in a permanently shutdown and defueled condition. CYAPCO has evaluated the present HNP Emergency Plan and developed the proposed HNP Defueled Emergency Plan (Attachment 1). CYAPCO conducted an initial meeting to discuss the contents of the HNP Defueled Emergency Plan with the appropriate officials from the State of Connecticut.

#### **Bases For Exemption Request**

10CFR50.12, "Specific Exemptions," describes the criteria that must be met in order to be granted an exemption from the requirements of 10CFR50. The NRC may grant exemptions from 10CFR50 regulations if special circumstances exist, an undue risk to the public will not be present and the exemption is consistent with the common defense and security.

Granting CYAPCO an exemption from the emergency preparedness requirements of 10CFR50.54(q) will not present any undue risk to the public health and safety. As previously discussed, there are no design basis events that could result in off-site consequences with the HNP permanently shutdown and defueled. An Alert is the highest emergency classification that can be reached based on the possible events. In addition, the proposed HNP Defueled Emergency Plan reflects the substantially reduced risk associated with the HNP's current status and provides for the organization and actions necessary to respond to an emergency. The proposed HNP Defueled Emergency Plan contains no actions that would jeopardize the common defense and security. CYAPCO will continue to maintain physical security, fire protection and radiological control programs.

The special circumstances which apply to CYAPCO's request for exemption from the requirements of 10CFR50.54(q) are 10CFR50.12(a)(2)(ii) and 10CFR50.12(a)(2)(iii). Application of each criteria to the HNP is discussed below.

#### **10CFR50.12(a)(2)(ii)**

"Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule. . . ."

The degree of emergency planning and preparedness necessary to provide adequate protection of the public health and safety in a permanently shutdown and defueled condition is significantly less than provided in the existing HNP Emergency Plan. This is substantiated by the fact that there are no design basis events that would result in doses beyond the Exclusion Area Boundary that would exceed the EPA PAGs. Therefore, requiring CYAPCO to comply with the full range of emergency preparedness requirements specified in 10CFR50.47(b) and 10CFR50, Appendix E is not necessary to achieve the underlying purpose of the rule. Specifically, the elimination of off-site emergency response capabilities and planning activities and a reduction in the scope of on-site response are warranted.

The proposed HNP Defueled Emergency Plan serves the underlying purpose of the rule in that it maintains provisions for responding to the remaining design basis events that could occur at the HNP in its current condition. The proposed plan addresses those actions necessary to mitigate the consequences of an accident and restore the facility to a safe and stable condition. The proposed plan would continue to provide reasonable assurance that appropriate measures can and will be taken to protect the health and safety of on-site personnel and property in the event of an emergency. The proposed plan also provides for the notification and periodic updating of the State of Connecticut in the event of a classifiable emergency at the HNP.

In addition, the NRC recognizes that the level of emergency preparedness required for a 10CFR50 facility correlates directly with the power level at which that facility is authorized to operate. This is documented in the NRC's response<sup>(2)</sup> to the Sacramento Municipal Utility District's (i.e., Rancho Seco) emergency planning exemption request of July 24, 1990. The NRC stated:

"Because the risk of a defueled nuclear power plant is significantly less than even that of a fueled plant operating at low power, the Commission concludes that the emergency preparedness requirements of 10CFR50.47(d)<sup>(3)</sup> regarding off-site preparedness are more appropriate for the Rancho Seco Nuclear Generating Station than the requirements of 10CFR50.47(b)."

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(2) D. Crutchfield (NRC), to D. Keuter (Sacramento Municipal Utility District), dated November 30, 1990.

(3) 10CFR50.47(d) specifically states that:

"... no NRC or FEMA review, findings, or determinations concerning the state of offsite emergency preparedness or the adequacy of and capability to implement State and local or utility offsite emergency plans are required prior to issuance of an operating license authorizing only fuel loading or low power testing. . ."

The NRC reached the same conclusion in its response<sup>(4)</sup> to the Public Service Company of Colorado's submittal of the Fort St. Vrain (FSV) Defueled Emergency Response Plan (DERP). The NRC stated:

"The NRC staff also reviewed the DERP based on the requirements of 10CFR50.47(d) for a license authorizing only fuel loading and low power testing. The requirements of 10CFR50.47(d) address the lower risk associated with low power operation and are generally appropriate for reviewing the off-site aspects of the FSV DERP."

Finally, the NRC in its response<sup>(5)</sup> to the Yankee Atomic Electric Company submittal of the Yankee Nuclear Power Station (YNPS) Defueled Emergency Plan (DEP) stated:

"The NRC staff has reviewed the DEP based on the planning standards of 10CFR50.47(b), the requirements of Appendix E to 10 CFR Part 50, and the guidance criteria of NUREG-0654, taking into consideration the current plant status and inherent low risk posed by the YNPS. The staff also reviewed the DEP using the requirements of 10CFR50.47(d) for a license authorizing only fuel loading and low power testing; these requirements address the decreased risk associated with low power operation and are generally appropriate for reviewing the offsite aspects of the DEP."

"Based on this review, the Commission has concluded that the YNPS DEP provides an acceptable emergency preparedness program for the YNPS in its permanently shut down status, and the plan provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological accident at the YNPS."

It is CYAPCO's position that the NRC's findings also apply to the current status of the HNP.

10CFR50.12(a)(2)(iii)

"Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated. . . ."

Compliance with the regulations present an undue hardship to CYAPCO in that it requires expenditures in excess of those contemplated when the regulation was adopted and expenditures in excess of those incurred by plants that are or have been

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(4) D. Crutchfield (NRC), to C. Crawford (Public Service Company of Colorado), dated December 31, 1990.

(5) M. B. Fairtile (NRC) to J. M. Grant (Yankee Atomic Electric Company), dated October 30, 1992.



in a similar situation (e.g., Rancho Seco, Fort St. Vrain, YNPS). The regulation was established for power operation conditions because such conditions could result in the potential for an accident with off-site consequences.

In view of the fact that power operations at the HNP have ceased, and thus the potential risk associated with activities at the HNP has been substantially reduced, maintenance of off-site emergency response capabilities (e.g., facilities, public notification system), off-site planning activities and the current level of on-site response, would represent a misallocation of CYAPCO's resources. Such resources would be better allocated to maintaining the proposed HNP Defueled Emergency Plan and training appropriate emergency response personnel.

#### **Plant Operations Review Committee (PORC) Review**

The PORC has reviewed this letter and the proposed HNP Defueled Emergency Plan and concurs with the above determination.

#### **Schedule Required for NRC Approval**

It is CYAPCO's objective to implement the HNP Defueled Emergency Plan as soon as possible. Therefore, CYAPCO requests that the exemption be granted and the HNP Defueled Emergency Plan be approved by October 1, 1997 so that the appropriate measures can be taken to implement the HNP Defueled Emergency Plan in 1998.

#### **Conclusion**

Based on the information presented in this letter and contained in the proposed HNP Defueled Emergency Plan, it is CYAPCO's position that an exemption from the requirements of 10CFR50.54(q) is justified.

If the NRC staff should have any questions regarding this submittal, please contact Mr. G. P. van Noordennen at (860) 267-3938.

Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER COMPANY



T. C. Feigenbaum  
Executive Vice President and  
Chief Nuclear Officer

Attachment

cc: H. J. Miller, NRC Region I Administrator  
M. B. Fairtile, NRC Project Manager, Haddam Neck Plant  
W. J. Raymond, NRC Senior Resident Inspector, Haddam Neck Plant  
K. T. A. McCarthy, Director, CT DEP Monitoring and Radiation Division

Attachment 1

Haddam Neck Plant

Proposed HNP Defueled Emergency Plan