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Docket Nos. 50-213
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Dr. John Ahearne, Chairman
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Haddam Neck Plant
Millstone Nuclear Power Station, Unit Nos. 1 and 2
Capital Costs for Implementation of Action Plan Requirements

As a result of the March, 1979 accident at Three Mile Island Unit No. 2, the NRC developed a comprehensive and integrated plan for implementation of actions judged necessary by the Commission to correct or improve the regulation and operation of nuclear power plants. In May, 1980, the NRC published NUREG-0660, the TMI Action Plan. Included in the Action Plan were NRC Staff estimates of industry resources and schedules necessary to implement the various Action Plan requirements.

Sections 2(E) and 3(A) of Executive Order 12044 from former President Jimmy Carter required the NRC to establish criteria for evaluating regulations and analyzing alternatives. A letter from former Commission Chairman Joseph H. Hendrie to the President of the United States, dated July 21, 1978, includes the following quote from the NRC's Value-Impact guidelines, adopted by the Commission in January, 1978:

> "The policy of the Nuclear Regulatory Commission is that value-impact analysis be conducted for any proposed regulatory actions that might impose a significant burden on the public (where the term public is defined in the broadest sense). Such policy is not to be construed to mean that cost considerations take precedence over considerations of health, safety, environment, or national security. These factors remain paramount. However, where there are alternative means of realizing equivalent benefits in regulatory matters, cost should be a prime consideration."

The purpose of a value-impact analysis is to assure that the expenditure of capital and manpower resources by both the licensee and the Staff will result in increased plant safety. Thus, the expenditure of significant resources is justified only if it significantly furthers the protection of the public health and safety. In a value-impact analysis, there is always a trade-off between cost and benefit. These value-impact analyses must be relevant input in determining the appropriateness of new requirements contemplated by the Commission. As with any decision making process, accurate input is sine qua non, and is a prerequisite for the NRC to make informed decisions.

Experience has demonstrated that the Staff's estimates of industry resources required to achieve compliance have been consistently low, sometimes by an order of magnitude or more. Connecticut Yankee Atomic Power Company (CYAPCO) and Northeast Nuclear Energy Company (NNECO) maintain that had the NRC performed realistic value-impact analyses on the Action Plan requirements and properly weighed cost against benefit, a number of the requirements would not be justified in terms of increased plant safety.

In support of this position, CYAPCO and NNECO hereby provide the attached listing of Action Plan requirements and a comparison of the Staff's resource estimates with actual costs incurred to date for the Haddam Neck Plant and Millstone Unit Nos. 1 and 2. Clarifying footnotes are included as appropriate. It should be noted that the costs listed in the Attachment are not the final costs in all cases, but only represent dollars expended to date. In addition, these figures do not include replacement power costs incurred by increased plant down-time. NRC estimates for implementation of the Action Plan requirements were obtained from NUREG-0660. CYAPCO and NNECO are not aware of any quantification of the benefits which should have been used as justification for promulgation of these requirements.

As is clearly shown on the attached table, the NRC has significantly underestimated the resources required to comply with these requirements. For example, the Staff's estimate for installation of the Reactor Coolant System High Point Vents, Item 11.B.1 is $100,000 per plant. Actual costs for installing the vent system at the Haddam Neck Plant and Millstone Unti No. 2 were, on the average, 1,000 percent higher than the NRC estimate.

CYAPCO and NNECO are providing this unsolicited information with the intention of improving future Staff estimates of industry resources used in cost-benefit analyses. To that end, we trust the Staff will perform more realistic value-impact analyses before mandating costly directives.

Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

W. G. Counsil

W. G. Counsil
Senior Vice President

cc: See next page

Commissioner P. A. Bradford

Commissioner V. Gilinski

Commissioner J. M. Hendrie

Mr. J. Carson Mark
Chairman, Advisory Committee on Reactor Safeguards

Mr. Bruce Babbitt
Chairman, Nuclear Safety Oversight Committee

NRC COST ESTIMATES VS. ACTUAL CAPITAL COSTS FOR TMI ACTION PLAN REQUIREMENTS[1]

TMI Action Plan No.	Item Description	NRC Cost Estimate	Haddam Neck Plant	Millstone Unit No. 1	Millstone Unit No. 2
II.B.1	Reactor Vessel Head Vent	100,000	1,102,000	NA	988,000
II.B.2	Plant Shielding Review	50,000	6,000	252,000	155,000
II.B.3	Post Accident	100,000	652,000	651,000	400,000
II.D.3	Valve Position Indication	100,000	186,000	222,000	97,000
II.E.1.1	Auxiliary Feedwater System Evaluation	30,000	162,000	NA	--[2]
II.E.1.2	AFWS Initiation and Flow Indication	20,000[3]	305,000	NA	714,000
II.E.4.2	Containment Isolation	350,000	59,000[4]	5,000	--[5]
II.F.1	Accident Monitoring	250,000	1,245,000	1,746,000	832,000
II.F.2	Instrumentation to Detect ICC	250,000[6]	146,000	NA	51,000
III.A.1.2	Emergency Operations Center	→ 4.54 million[7]	6,237,000	2,625,500[8]	2,625,500[8]
II.A.2	Emergency Preparedness				
III.D.1.1	Systems Integrity	5,000[9]	1,149,000	125,000	6,000
III.D.3.4	Control Room Habitability	500,000	257,000[10]	256,000[10]	205,000[10]

FOOTNOTES

(1) Readers of this document are cautioned against totaling the columns to determine the average comparison of NRC estimates vs. actual expenditures. Items III.A.1.2 and III.A.2 dominates the totals and incorrectly bias the results of such a comparison. A valid comparison can only be made on an item-by-item basis.

(2) The resources required to comply with the Bulletins & Orders Task Force recommendations for this item consist primarily of costs for an engineering evaluation of the auxiliary feedwater system, and capital costs for minor system modifications. NNECO is unable to quantify these costs, however, total cost should not exceed the NRC estimate.

(3) The NRC cost estimate includes safety-grade Automatic Auxiliary Feedwater Initiation and Flow Indication. Actual costs were approximately 35 times higher than the NRC estimate for Millstone Unit No. 2. Such a significant expenditure is justified only by a substantial increase in plant safety. During the ACRS Subcommittee meeting of the Bulletins and Orders Task Force held on January 3, 1980, in testimony from Mr. P. Matthews of NRR responding to Dr. Zudans of the Equipment Qualification Branch, Matthews acknowledged that the only reason for requiring automatic initiation of auxiliary feedwater was because an analysis showed that automatic initiation provides higher reliability for the Auxiliary Feedwater System. Matthews acknowledged that automatic initiation does not necessarily lessen the consequences of a particular event. In the case of Millstone Unit No. 2, expenditure of close to three quarters of a million dollars has, in the judgment of the Staff, only increased reliability and not necessarily increased plant safety. The position of CYAPCO and NNECO was thoroughly discussed in a letter from W. G. Counsil to Commissioner Hendrie dated November 30, 1979.

(4) This figure does not reflect the total cost to comply with this requirement. Final expenditures will not be available until other NRC issues regarding containment isolation are resolved. However, the cost is expected to be significantly greater than is given here.

(5) Costs to comply with this requirement were for an engineering evaluation of the requirements of this item. NNECO is unable to quantify these costs, however, total cost should not exceed the NRC estimate.

(6) The NRC estimate includes costs for a subcooled margin monitor and a reactor vessel water level monitoring device. The Haddam Neck Plant and Millstone Unit No. 2 costs reflect only the cost of the subcooled margin monitor. The resources required to achieve full compliance with this requirement will significantly exceed the Staff's estimate.

(7) This estimate is from the December, 1979 draft of NUREG-0660. Later versions of NUREG-0660 quoted industry estimates for this item and were much more realistic. The NRC estimate given here is for total resources to comply with Chapter III in its entirety. A comparison of this estimate with actual expenditures for only two sections of Chapter III shows that this estimate is significantly low. Compliance with Chapter III, including the Nuclear Data Link (NDL), will require resources in excess of those already expended and far more than in the NRC estimate.

(8) This represents one-half of total cost, since costs are equally shared by Millstone Unit Nos. 1 and 2.

(9) Includes modifications to prevent unplanned releases as a result of the North Anna incident.

(10) Actual expenditures to date for this requirement reflect only the cost of evaluating present habitability systems. Modifications to these systems are under development and will significantly increase capital costs for all three units. It is clear that the NRC estimate will ultimately be exceeded by a significant amount.