United States Senate

August 15, 1980

To ensure proper handling please return all correspondence TO THE ATTENTION OF:

Ruth Fleischer

Respectfully referred to:

Congressional Liaison
Nuclear Regulatory Commission
Washington, DC

respond to the attached inquiry in
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our cooperation.

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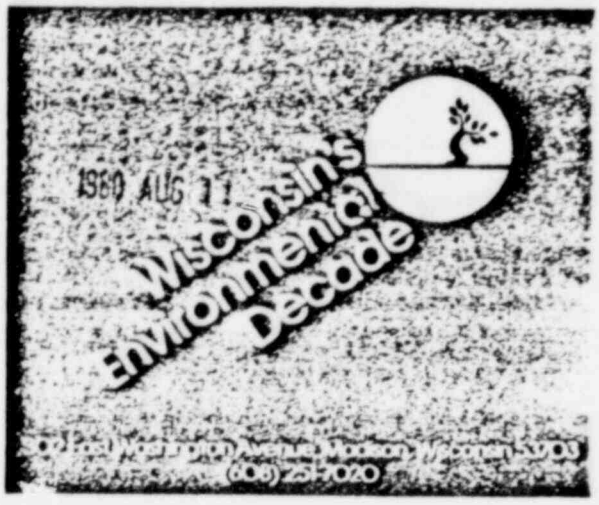

August 8, 1980

Senator William Proxmire
5241 Dirksen Senate Office Building
Washington D.C. 20510

SAVE

Dear Senator Proxmire:

We are writing to seek your assistance to help prevent a worse accident than occurred at Three Mile Island Nuclear Plant from happening in Wisconsin at the Point Beach facility.

As you may recall, the President's Kemeny Commission on the accident at TMI concluded that the Nuclear Regulatory Commission "is unable to fullfill its responsibility for providing an acceptable level of safety for nuclear power plants". (1) Similarly, the NRC's own in-house investigation by the Rogovin Inquiry Group found that the Commission "is incapable, in its present configuration, of managing a comprehensive national safety program for existing nuclear powerplants". (2)

One of the documented failures of the NRC that led to this conclusion, as stated in the reports, was the Commission's classification of major safety problems as "generic issues" and then leaving them unresolved for many years without taking any action. (3) (4)

The question which all of us in this state must confront is whether there are major safety concerns affecting nuclear generating plants in Wisconsin that are not being adequately dealt with by the NRC sufficient to provide the degree of protection the public demands.

Unfortunately, the answer is yes: there is just such a safety concern of potentially overwhelming importance and that relates to whether or not the facility can avoid a reactor core meltdown in the event of a loss-of-coolant accident. More precisely, the problem arises from corrosion of the tubes in the steam generators of Unit 1 at Point Beach, the technical details of which are briefly described in the note. (5)

According to the prestigious and independent American Physical Society, the "rupture of a few tubes (on the order of one to ten) dumping secondary steam into the depressurized primary side of the reactor system could exacerbate steam binding problems and induce essentially uncoolable conditions in the course of a loss-of-coolant accident" in plants experiencing tube corrosion. (6)

That is to say, as described more fully in the note, the critical safety systems of a nuclear plant with corroded tubes are seriously impaired and the ability of such a plant to withstand what would otherwise be a minor accident a stave off a worst case nuclear accident have been compromised. (7)

And Point Beach 1, which previously experienced the single worst tube rupture of any plant in this country(8), is also presently experiencing the worst observed rate of continuing tube degradation of any of the nation's nuclear reactors(9).

In the face of this, most responsible people will be appalled to learn that the NRC has yet to conduct a full adjudicatory investigation of the generic issue or take action to resolve the matter specifically at Point Beach 1. Moreover, as documented below, the Commission has affirmatively acted to quash any investigation of the issue sought by members of its own staff as well as by independent scientists and citizen intervenors.

One of the conclusions of the Rogovin Inquiry Group was that the NRC stiffled staff members who raised safety concerns:

> "Within the NRC, complacency has created a climate in which the pursuit by an individual employee of concerns regarding the safety of systems or hardware that the staff has previously concluded was safe is discouraged. Indeed, it appears well understood by the staff that the assertion of safety concerns, particularly those that may be controversial, is most unlikely to advance one's career and is far more likely to result in stigmatization." (10)

This pattern evinced itself squarely in regard to the steam generator tube corrosion issue. In 1971, more than nine years ago, a staff task force investigating the efficacy of the emergency core cooling system, the last line of defense against a core meltdown in a nuclear reactor, reached the following disturbing conclusion:

> "Of paramount concern in this area (of whether the emergency core cooling system could keep the core cooled in the course of an accident), however, is the possible effect of steam generator tube failures on the emergency core cooling system. It seems clear that the area of steam generator integrity during blowdown requires an immediate and thorough investigation." (11)

Yet nothing was done to implement the staff task force's recommendation for a hearing. The Commission later conceded that, although there was some discussion of the subject, no one was even assigned to study the question. (12)

Two years afterwards, citizen organizations attempted to insert the issue into pending Atomic Energy Commission generic safety hearings, but the AEC abruptly cut off questions on the subject, apparently because of a concern that there were no adequate answers. (13)

Again, two years after that, in commenting on this exclusion of the issue from earlier consideration, the American Physical Society stated:

> "At the current low flooding rates predicted for pressurized water reactors, even a minor break of this sort (in the steam generator tubes) might reduce the rates to values so low that the core would not be adequately cooled. Thus, the potential for steam generator tube leakage appears to be a serious problem which was precluded from evaluation at the (generic safety hearings in 1973). The problem will no doubt be a topic for future review in connection with licensing new reactors." (14)

Prodded by the American Physical Society, the tube integrity issue was raised in one succeeding licensing proceeding a year later, involving the Prairie Island Nuclear Plant, but the record was closed without resolution after "the staff made a commitment * * * to conduct a 'generic appraisal of the likelihood and consequences of the customary transient and accident analyses with assumed tube failure'". (15) However, that was not in fact done, and by the end of 1979, three years later, the staff was still discussing what should be done to evaluate the problem at some distant point in the future. (16)

Once more, two years after Prairie Island, the NRC and its Reactor Study Group (the so-called Rasmussen study) were criticized again by independent scientists for failing to consider the safety consequences of tube degradation. (17)

Then, the next year, beginning in August of 1979, Point Beach 1 experienced runaway corrosion of the plant's steam generator tubes, with 97 of the unit's 6250 tubes requiring plugging due to corrosion on August 5, 1979, four more on August 29, 1979, 145 on October 5, 1979, 35 on December 11, 1979, 60 on February 28, 1980 and 59 on August 5, 1980. (18) In the process, all of the NRC's previous bases for continued operation of the facility were shown to be unfounded.

That alarming acceleration of corrosion at Point Beach 1--the worst in the country--impelled us on November 14, 1979, and in the months to follow, to petition the NRC for a public hearing on the matter. (19) On May 12, 1980, the Commission finally issued a ruling which delegated the question to an Atomic Safety and Licensing Board (a mechanism for administrative law judges to take responsibility for conducting the proceeding)--but limited the issues that the Board could consider in such a manner as to specifically exclude the very safety issues which were at issue. (20)

The action was so far outside the bounds of responsible behavior that two of the five Commissioners issued a stinging dissent, stating in relevant part:

"One need not have high expectations about the contribution that a hearing might make to the safety of the plant in any given case to be distressed about the levels of illusion involved * * *

"The agency so misstates history that it is clearly either incapable of giving an accurate account of its own past doings or else its legal positions are being chosen after the desired result (in this case no meaningful opportunity for hearing) has been decided.

" * * *

"The hearing being offered * * * is a sham. * * *

"Most unfortunate of all is the way in which the Commission's pell mell retreat from meaningful public inquiry * * * suggests to the staff and the outside world that the agency is run by people living in fear of their own citizenry.

"In the wake of the Kemeny and Rogovin Report's calls for more effective public involvement, the Commission responds with a hearing offer that is a transparent sham." (21)

Returning to the present, as things now stand, we have asked the NRC Licensing Board at a prehearing conference held on July 30, 1980, to expand the scope of any hearing to include the serious safety issues involved with degrading tubes which have been identified by the American Physical Society and others. In the alternative, we have moved the Board to ask the full Commission to reconsider its earlier order excluding the safety issues from any hearing. (22)

In this regard, the State of Wisconsin Department of Justice, at the request of Governor Lee S. Dreyfus, has joined in and supported our request to have the safety issues heard in an adjudicatory hearing.

Our purpose in writing this letter is to seek your support as well in pressing the NRC to, at long last, hold that rigorous examination of the tube degradation problem with a full scale adjudicatory hearing that the issue demands. Unless the people's elected representatives inform the Commission it is unacceptable for the agency to abdicate its regulatory responsibilities, nothing will be done and Wisconsin will be at risk of a worse accident than Pennslyvania narrowly averted.

It is time, at long last, for the Commission to be told, in the words of the Rogovin Inquiry Group, that it can no longer place "the industry's convenience" above its "primary role of assuring safety". (23)

Thank you in advance for your consideration of this serious matter. We would greatly appreciate being kept informed of any action you choose to take.

Sincerely,

WISCONSIN'S ENVIRONMENTAL DECADE, INC.

By John C. Neess

PROF. JOHN C. NEESS
Executive Director

JCN/mt
Attachment(Footnotes)

FOOTNOTES

(1) President's Commission on the Accident at Three Mile Island, The Need for Change:The Legacy of TMI(1979), at 56.

(2) Nuclear Regulatory Commission Special Inquiry Group, Three Mile Island: A Report to the Commissioners and to the Public(1979), at 89.

(3) President's Commission, op. cit., at 51.

(4) Inquiry Group, op. cit., at 139 to 140.

(5) In any steam generating electric power plant, whether powered by coal or uranium, water is boiled by a heat source, turned into steam and used to turn a turbine to produce electricity. In today's generation of nuclear reactors, that heat source is enriched uranium U-235. In the type of reactor used at Point Beach, water in a closed primary cooling system is used both to cool the fissioning uranium in order to prevent a core meltdown and to carry away the core's heat to produce steam. The water is also used as a moderator to slow down the neutrons so that the fission reaction can be sustained. In order to keep the cooling water surrounding the intensely hot core from simply boiling away, it is kept under pressure in the primary system, since water boils at higher temperatures when under pressure, as in the kitchen pressure-cooker. The water in the primary system which carries away the heat from the core is piped to a steam generator where that heat is used to generate steam. This is done by dividing the primary pipe into thousands of very thin tubes less than an inch in diameter and with walls approximately five-hundredths of an inch thick to achieve the improved efficiencies derived from the resulting greater surface area. Before the hot water in these tubes is returned to the reactor core to begin the cycle again, the heat is exchanged with other water surrounding, but outside, the tubes and that is fed into the steam generator from the secondary cooling system. The transfered heat turns the secondary cooling water into steam because the secondary system is kept at pressures about one-third of that in the primary system. Then, the steam is led away to the turbines, after which, spent of most of its usable heat energy, a third water system called condensor cooling water condenses the waste steam in the secondary system back into water and it is returned through the secondary system to the steam generator to begin that cycle again. Corrosion effects on the steam generator tubes are constantly a potential problem in maintaining the integrity of the primary system, because corrosion may eventually wear through the tube wall permitting the radioactive primary water to enter the non-radioactive secondary water, as well as depressurize the primary system. It may also cause the kind of safety problem which is the subject of this letter. Originally, a chemical phosphate treatment was added to the secondary water to alleviate corrosion, but it now appears that that same phosphate treatment actually caused corrosive processes.

(6) American Physical Society, Report to the American Physical Society by the Study Group on Light-water Reactor Safety, 47 Reviews of Modern Physics Supp. 1, at S-85(1975).

(7) The accident sequence considered by the American Physical Society is precipitated by a pipe break in the primary cooling system from an external

cause. A break in the heavily pressurized primary system would cause an instantaneous pressure reversal throughout the system, including in the thin steam generator tubes. The stress from such a pressure reversal on thin tubes, if they are in corroded state, would cause them to rupture and steam from the still pressurized secondary side would enter the depressurized primary side. When the emergency core cooling system would attempt to reflood the core to prevent a meltdown, the steam from the secondary side would retard the flow and starve the core of vital cooling water.

(8) Nuclear Regulatory Commission, Evaluation of Steam Generator Tube Rupture Events(1980), NUREG-0651.

(9) In the Matter of Wisconsin Electric Power Company, Point Beach Nuclear Plant Unit 1, NRC Docket 50-266, Safety Evaluation Report Related to Point Beach Unit 1 Steam Generator Tube Degradation Due to Deep Crevice Corrosion(Nov. 30, 1979), at 5.

(10) Inquiry Group, op. cit., at 163.

(11) In the Matter of Generic ECCS Rule-making, AEC Docket RM-50-1, Exhibit 715, at 6.

(12) Docket RM-50-1, op. cit., at Tr. 2335.

(13) Ibid, at Tr. 2337.

(14) American Physical Society, op. cit., at S-91.

(15) In the Matter of Northern States Power Company, Prairie Island Nuclear Generating Plant, Units 1 and 2, NRC Dockets 50-282 and 50-306, Decision of ALAB(Sept. 2, 1976), at 198 n. 41.

(16) Nuclear Regulatory Commission, Task Action Plans for Unresolved Safety Issues Related to Nuclear Power Plants(1980), NUREG-0649, at A-3.

(17) Risk Assessment Review Group, Report to the Nuclear Regulatory Commission (1978), NUREG/CR-0400, at 48.

(18) Re Wisconsin Electric Power Company, PSCW Docket 6630-CE-20, Exhibit 10, Letter from C. W. Fay to H. R. Denton, dated August 5, 1980.

(19) Docket 50-266, op. cit., Petition of Wisconsin's Environmental Decade, dated November 14, 1979.

(20) Docket 50-266, op. cit., Order(May 12, 1980).

(21) Ibid.

(22) Ibid, Alternative Motion of Wisconsin's Environmental Decade, dated July 30, 1980.

(23) Inquiry Group, op. cit., at 19.