

DOCKET NUMBER 50-289
PROD. & UTIL. FAC.

FEB 25 1982



The Honorable Arlen Specter
United States Senate
Washington, D.C. 20510

Dear Senator Specter:

Because of the Commission's adjudicatory role in the Three Mile Island Unit 1 restart proceeding, it would be inappropriate for Chairman Palladino to comment directly on the matters raised by your letter of February 8, 1982. Therefore, I am responding to your letter enclosing allegations of the Union of Concerned Scientists regarding the Nuclear Regulatory Commission (NRC) correspondence with Pennsylvania Governor Richard Thornburgh.

We received a similar request for comments on the NRC staff's January 5, 1982, letter to Governor Thornburgh from Congressman Morris Udall, Chairman of the House Committee on Interior and Insular Affairs. On February 10, Mr. William Dircks, NRC's Executive Director for Operations, responded to the issues raised by Congressman Udall.

I believe that Mr. Dircks' response is also responsive to your request and am enclosing a copy for your information.

Sincerely,

Carlton Kammerer, Director
Office of Congressional Affairs

Enclosure:
As stated

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SECRETARIAT RECORD COPY

The Honorable Morris K. Udall, Chairman
Committee on Interior and Insular Affairs
United States House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

I am providing an NRC staff response to the questions you posed in your January 20, 1982 letter to Chairman Palladino because it would be inappropriate for the Commission to comment on matters pending before it in the Three Mile Island Unit One (TMI-1) restart proceeding.

I agree with you that the letter and memorandum you referred to in your letter give a confusing picture of the staff review of the water level instrumentation proposed by the licensee for TMI-1. I regret this confusion. It was inadvertent, and I have written to Governor Thornburgh to clarify the matter (copy enclosed). The confusion resulted from the fact that the memorandum to the Commission, although signed on December 29, was actually prepared by the staff after the letter to Governor Thornburgh that was signed on January 5.

The staff had attempted to keep the two documents coordinated by noting in the letter to Governor Thornburgh that "some design modifications are expected to be required before the system is installed." Our meaning apparently was not conveyed, and we regret the misunderstanding that resulted.

To be clear on where we stand today, the engineering details of the design proposed by Metropolitan Edison for the level measurement system at TMI-1 are unacceptable to the staff in that the proposed design meets some but not all of our requirements. We have enclosed a copy of our January 6, 1982 letter to the licensee transmitting this conclusion and its technical basis. That letter also identifies the design modifications that would satisfy the staff's requirements.

The second question you raised concerned the basis for the staff's conclusion that reasonable progress is being made by Metropolitan Edison towards meeting the requirement to install a vessel level measurement system in TMI-1. Your specific words concerned "the reasonableness of there being a lapse of more than four years" between our establishing the requirement and the installation of such equipment.

The staff recently sent two papers to the Commission concerning PWR vessel level measurement systems. They are numbered SECY 81-582 and 582A and copies are enclosed. (The second one is the December 29 memorandum to which you referred.) These papers point out the remaining difficulties in designing, testing, and installing level measurement systems. In addition, ACRS members have voiced strong reservations about hasty implementation of these systems. They are concerned that ambiguous measurements could detract from overall safety. A recent ACRS letter to the Commission reflecting this concern is also enclosed.

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On January 8, the Commission met with the NRC staff, the suppliers of PWR vessel level measurement systems, and ACRS representatives. The meeting disclosed that there remain significant uncertainties about the systems that have been proposed. The Commission has asked for the staff's plan to resolve the uncertainties. A copy of our response is enclosed.

We believe that existing instrumentation and procedures in PWRs are adequate to guide operators in the detection of and recovery from possible situations of inadequate core cooling. However, to guard against unanticipated events and to provide less ambiguous information to reactor operators, additional information is desirable. As we have proceeded to explore new instrumentation, we have found that if it is not chosen and implemented carefully, it would be possible to create new safety problems.

Until last fall, Metropolitan Edison had not proposed a specific design for a level measuring system for TMI-1. Their effort to do so in November was a good-faith effort to develop and refine a vessel level measurement system. Our review and their design are not complete at this time. However, the company has committed to installation of a system at its next refueling outage. That schedular commitment is consistent with what we are requiring of other operating PWRs. It is also consistent with the cautious and deliberate approach we feel is warranted for this particular instrument system. Expecting further progress in Metropolitan Edison's response to our letter of January 6, we find their overall progress on this matter to continue to be acceptable.

Sincerely,



William J. Dircks
Executive Director for Operations

- Enclosures: - 1 -
1. February 10, 1982 letter from Dircks to Thornburgh
 2. January 6 letter to licensee
 3. SECY 81-582 and 582A
 4. ACRS letter to Commission
 5. Staff response to Jan. 8 meeting

cc: Rep. Manuel Lujan



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

FEB 10 1982

Docket No. 50-289

The Honorable Dick Thornburgh
Governor of Pennsylvania
Harrisburg, Pennsylvania 17120

Dear Governor Thornburgh:

I am providing you with an update on one of the items discussed in my letter of January 5, 1982. That item was "Inadequate Core Cooling." In the paragraph with this heading, we discussed the status of our review of Metropolitan Edison's proposed additional instrumentation to detect loss of water from the primary system of Three Mile Island Unit One. We noted that the instrumentation was under staff review and that some design modifications were expected to be required.

You will recall that the licensee's progress on the installation of a level measurement system was an item of concern that Congressman Udall had earlier identified to you. On January 20, 1982, Congressman Udall called to our attention an administrative error involving our January 5, 1982 letter to you and a December 29, 1981 memorandum from me to the Commission that caused some confusion as to what the NRC staff position on the level measurement system actually was. I have enclosed his letter, my response, and my December 29 memorandum for your information. I trust these will clear up any confusion that may have been created.

Sincerely,

A handwritten signature in dark ink, appearing to read "W. J. Dircks".

William J. Dircks
Executive Director for Operations

Enclosures:

1. 1/20/82 letter, Udall to Palladino
2. Dircks response to 1/20/82 Udall ltr
3. 12/29/81 memorandum, Dircks to
Commission

Specter

United States Senate

WASHINGTON, D.C. 20510

February 8, 1982

Dr. Nunzio J. Palladino
Chairman of the Nuclear
Regulatory Commission
1717 H Street, N.W.
Washington, D.C. 20555

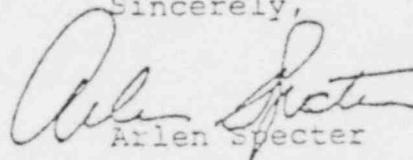
Dear Chairman Palladino:

Enclosed is a copy of a letter dated January 26,
1982, from the Union of Concerned Scientists to
Governor Richard Thornburgh of Pennsylvania.

Perhaps you have responded to this letter via
one of the other recipients of a copy of the letter.
In any event, I would welcome your comments.

Thank you for your assistance.

Sincerely,


Arlen Specter

AS/ww

Enclosure

cc: Mr. Henry W. Kendall
Mr. Robert D. Pollard

2/12...To OCA for Direct Reply...Suspense: Mar...Cpys to: RF, EDO, Docket
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**UNION OF
CONCERNED
SCIENTISTS**

1346 Connecticut Avenue, N.W.
Dupont Circle Building, Suite 1101
Washington, D.C. 20036

(202) 296-5600

January 26, 1982

Honorable Richard Thornburgh
Governor
Commonwealth of Pennsylvania
Harrisburg, Pennsylvania 17120

Dear Governor Thornburgh:

We are writing in response to the NRC staff's letter to you of January 5, 1982, regarding the restart of Three Mile Island Unit 1. The most charitable interpretation of that letter is that it is grossly misleading. A more frank appraisal is that it is deliberately deceptive.

As you recall, your letter of November 20, 1981 to the Chairman of the Nuclear Regulatory Commission forwarded for review letters you had received from U.S. Rep. Morris K. Udall, dated July 23, 1981, and from UCS, dated October 19, 1981. You urged Chairman Palladino "to conduct a careful and objective review" of the questions surrounding the safety of restarting TMI-1 that were raised by Rep. Udall and UCS. You suggested that if there were "any Unit 1 safety questions that have yet to be satisfactorily addressed, . . . now is the time for the NRC to address them." Finally, you requested "a written response from [Chairman Palladino] or [his] staff reflecting NRC's view of the various points raised by UCS and Rep. Udall."

The NRC staff characterized its reply to your expression of a "paramount concern for the health and safety of the people who live within the shadow of Three Mile Island" as an "interim response." However, it is clear that the NRC staff did not address the questions you posed. There is no evidence that the staff carefully and objectively reviewed the substantive issues raised by UCS and Rep. Udall. The staff avoids saying whether any Unit 1 safety questions have yet to be satisfactorily addressed or, if so, whether the NRC has any plans to address them now. Instead, the staff's letter purports to "summarize Staff positions on the several technical and procedural issues raised."

If the NRC had simply failed to respond to your questions, we would not need to bring that self-evident fact to your attention. Our reason for writing now is that the NRC staff has not only declined to address the safety concerns that you articulated, but in addition has presented you with information that does not reflect the whole truth. In our view, the staff has attempted to create an impression more favorable to restart of TMI-1 than it knows is warranted.

Rep. Udall's Letter

Consider, for example, the staff's response to the issues raised by Rep. Udall. Mr. Udall pointed to the "continuing resistance by GPU to requirements instituted for purposes of correcting deficiencies revealed by inquiries into the accident." He cited as an example GPU's resistance to the requirement to install water level instrumentation for the reactor vessel. Rep. Udall concluded with the following observation:

The reluctance of GPU to meet the NRC requirement, to say nothing of its failure to go the extra mile, suggests that the current TMI management, as did its predecessor, holds that the plant systems as they exist are adequate to cope with anticipated events; they appear to believe that unanticipated events simply will not occur. This is of course the same line of thinking that led to GPU's present predicament.

Thus, Rep. Udall's letter can fairly be characterized as expressing concern primarily about GPU's attitude and only secondarily about water level instrumentation. The staff's response is to acknowledge only the example and not to address the fundamental issue of GPU's attitude.

In addition, even this limited response does not accurately represent the staff's views. In its letter to you, the staff said:

. . . GPU has revised its position on this matter and has now committed to installation of a system in the Reactor [Coolant] System (RCS) hot leg piping which will provide an indication of RCS inventory loss. This system is currently being reviewed by the Staff and some design modifications are expected to be required before the system is installed at the next TMI-1 refueling outage.

This statement does not convey the same message as the report the staff gave the NRC Commissioners on the TMI-1 water level instrumentation only a week before its letter to you. In a memorandum for the Commissioners dated December 29, 1981, the staff said:

A single dp [differential pressure] measurement over the top 10 feet of the hot leg (as proposed for TMI-1) would detect voiding at the top of the candy cane. It will probably track hot leg level for a sufficient distance to distinguish between over cooling transients and a loss of coolant inventory indicative of an approach to core uncover. It would also provide valuable information to support reactor coolant system venting operations and to confirm that natural circulation operation is not interrupted by voiding in the candy cane. However, it would not trend voiding with the pumps running and would not indicate void formation in the reactor vessel head until vessel water level reaches the hot leg nozzle. It would also fail to provide a continuous

indication of coolant inventory loss proceeding to core uncover, and would not track the replenishing of coolant inventory. * * * As presently proposed, the single dp measurement over the top 10 feet of the hot leg is unacceptable to the staff. (emphasis added)

The inability of the proposed instrumentation to detect the formation a steam bubble void in the reactor vessel and the inability to measure extent of core uncover are major deficiencies. In view of the deficiencies and the staff's conclusion that the proposed TMI instrumentation design is unacceptable, we believe that the staff's statement to you that "some design modifications are expected to be required" is misleading. The staff's phrasing is akin to saying that a proposed automobile design that does not include wheels and an engine is acceptable although some design modifications may be required.

In sum, the NRC staff's response to the matters raised by Rep. Udall consists of ignoring the principal issue of GPU's attitude and failing to accurately inform you that the staff found GPU's belatedly proposed design changes to be unacceptable.

UCS's Letter

Regarding the staff's handling of the safety issues raised by UCS it is clear that the staff did not address the substance of those issues:

- 1) The NRC's focus on quick, cheap fixes that ignore the more serious problems revealed by the TMI-2 accident;
- 2) The restrictions in the scope of the hearings which prevented consideration of important questions about the safety of restarting TMI-1;
- 3) Reducing NRC's standard of safety to the lowest common denominator by ignoring safety problems that are not unique to TMI-1;
- 4) NRC's repeated extension of deadlines for implementing the TMI-2 "lessons learned" requirements after pressure from the nuclear industry; and
- 5) The retraction or substantial weakening of commitments made by the NRC staff and GPU Nuclear to make improvements directly related to the causes of the TMI-2 accident.

Like the response to the matters raised by Rep. Udall, the staff answer to the safety questions raised by UCS consists of ignoring the principal issues and providing misleading information on the examples. A brief discussion of just one subject, environmental qualification of safety equipment, will illustrate the deceptive nature of the staff's response to you.

Environmental qualification of safety equipment involves demonstrating that the equipment which is needed to safely shut down the plant in an accident can survive the environment that it will be exposed to during an accident. In our earlier letter to you, we pointed out that the staff's testimony had not addressed accidents such as steam line breaks and, even small break loss-of-coolant accidents, had been limited to an accident of much smaller dimension than the TMI-2 accident. We also noted that limitations on the scope of the hearings had prevented UCS from presenting evidence that many safety-related components in TMI-1 have not been qualified to survive serious accidents. Finally, we expressed our doubts that the staff and GPU Nuclear would honor their promises to correct the environmental qualification deficiencies at TMI-1 by July 1982.

In its response the staff acknowledges the accuracy of one of its statements, but misleads you on the remainder of the issues we raised. The staff states that its testimony was "directed [rather than UCS's "limited"] to the ability of equipment to function following a small break loss of coolant accident (SBLOCA) not involving core damage . . ." Since the TMI-2 accident was a small break loss-of-coolant accident that involved substantial core damage, this confirms that the staff analyzed only an accident of the same type as, but less serious than, the TMI-2 accident.

Next the staff states its position favoring "interim operation" of TMI-1 until GPU can "complete the actions required for all operating plants under the Commission's Memorandum and Order CLI-80-21 dated May 27, 1980 to demonstrate that all safety-related electrical equipment will be qualified to withstand accident environments." CLI-80-21 specifies that all safety-related electrical equipment in all operating plants must be environmentally qualified by June 30, 1982. (11 NRC 707, 714, 715) However, the staff neglected to tell you that since July 1981, it has supported a request to extend that deadline. In October and November 1981, the staff prepared proposals for Commission consideration to accomplish that object. Just two days after the staff's letter to you, a majority of the Commissioners voted for a proposed rule which, if adopted, will extend the June 30, 1982 "deadline" to the end of the second refueling after March 1982. (See Inside N.R.C., January 11, 1982, p. 1) Thus, the situation is even worse than when we last wrote you. GPU apparently will not be required to correct the environmental qualification deficiencies at TMI-1 until June 1982 at the earliest. Furthermore, the proposed rule does not apply to all safety-related equipment. "Additional electrical equipment important to safety will be covered in a later rule, NRC said." (Id.) It would be pure speculation to attempt to estimate when or even if all the safety equipment in TMI-1 will be required to be environmentally qualified.

The next point in the staff's response which we believe is misleading is the statement that "[a]lthough qualification of all of the equipment has been fully demonstrated, many of the deficiencies to fully demonstrate compliance involve a lack of documentation of confirmatory test results which do not support a finding that the equipment is qualified." This statement creates the false impression that most of the remaining problems involve only a few missing pieces of paper or the performance of some perfunctory tests which will not provide any new information. In reality, the situation is far worse and the staff knows it. In urging the Commissioners to extend the June

1982 deadline, the staff informed the Commissioners that "licensee submit to date do not satisfactorily identify all deficiencies or provide complete justification for interim operation . . ." (Staff Recommendations Concern Extension of June 30, 1982 Deadline for Environmental Qualification Safety-Related Electrical Equipment, July 31, 1981, p. 2) The staff also informed the Commissioners that its "review to date has determined that environmental qualification has not yet been demonstrated for approximately 80% of equipment in a harsh environment" and that it estimated "that 15-40% of equipment in a harsh environment will need to be replaced." (Id.)

The staff's own "Safety Evaluation Report for the Environmental Qualification of Safety-Related Electrical Equipment at Three Mile Island Unit 1," dated March 24, 1981, discloses that environmental qualification deficiencies exist in the following safety systems: Emergency Core Cooling; Core Flood; Containment Spray; Auxiliary Feedwater; Nuclear Service Water; Containment Isolation; Decay Heat Removal; and Containment Cooling. The equipment involved includes pump motors, valve motor operators, pressure switches, electrical distribution centers, solenoid valves, limit switches, instruments to measure various temperatures, pressures and levels, cables, instrumentation, control and power circuits, electrical connectors, terminal blocks, containment electrical penetrations, and heat shrink tubing used as an insulator. The deficiencies range from some equipment that may be inadequate "only" because of aging effects to other equipment that may be inadequate due to the effects of temperature, pressure, humidity, chemical spray, radiation, and aging. Thus, relying solely on the staff's documents, it is clear that the staff's letter to you is decidedly incomplete. Numerous important safety systems at TMI-1 have not been shown to be capable of functioning during an accident and, under the extension proposed by NRC, the deadline for demonstrating adequate assurance of safety will be postponed for years.

The staff successfully prevented UCS from introducing this same safety evaluation report into evidence during the restart hearings, a ruling that the Licensing Board now regrets. (Partial Initial Decision, December 1981, paragraph 1162) The staff's objection to the introduction of evidence of its own safety evaluation report on environmental qualification of TMI-1 safety equipment should be contrasted with its statement to you that "[t]his issue was litigated in the TMI-1 restart proceeding." The fact that this issue was not fully litigated.

Despite the barriers which the staff and GPU erected to preclude a complete review of the environmental qualification issue, the Licensing Board nonetheless concluded that UCS "prevailed to the extent that UCS demonstrated that all of the safety equipment at TMI-1 will not meet all of the [environmental qualification] criteria in Regulatory Guide 1.89 at the time of restart." (Partial Initial Decision, paragraph 1181) Unfortunately, the Board declined to face the issue of whether "interim operation" of TMI-1 should be denied, in part because it also was misled into believing that the issues would be addressed by June 30, 1982. (Id.)

In sum, the staff's response regarding the safety significance of the environmental qualification issue is grossly misleading. It creates a false impression that the issues were fully litigated, that the remaining

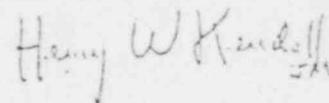
environmental qualification deficiencies are minor, and that they all will be corrected by June 30, 1982. On all these points, nothing could be further from the truth.

Conclusion

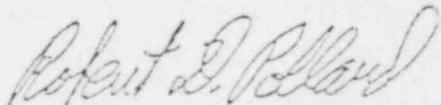
We have discussed only two of the safety issues in the staff's letter and concluded that on both the staff attempted to mislead you. The bases for this conclusion are, we believe, amply explained in the discussion above. If you would like copies of any of the referenced documents, we would be pleased to provide them. We repeat our offer to brief you or your staff on these and other safety issues relevant to restart of TMI-1 if you so desire.

We believe it is important to address one other point you made in your letter to Chairman Palladino. You commented that it would be foolish for you, as a layman, to substitute your judgment for the NRC's on whether there is adequate assurance that Unit 1 can be operated safely. We do not agree entirely with that view. It certainly would be unreasonable to expect you to become involved in analyzing the details of water level instrumentation design or the adequacy of an environmental qualification test for a particular piece of safety equipment. On the other hand, we believe that the judgments involved in assessing whether the Nuclear Regulatory Commission has conducted a careful and objective review of the relevant safety issues are well within your capability and, more importantly, your responsibilities to the residents of central Pennsylvania. In these latter areas, you need not be concerned about substituting your judgment for the Commission's. We believe that your independent review of the record will clearly show that the NRC failed in its responsibilities and that TMI-1 should not be restarted in these circumstances.

Sincerely,



Henry W. Kendall
Chairman
Board of Directors



Robert D. Pollard
Nuclear Safety Engineer

cc:

Rep. Morris K. Udall
Sen. John Heinz
Sen. Arlen Specter
Rep. Allen Ertel
Rep. Robert S. Walker
William J. Dircks