

**We The People, Inc.**  
**of the United States**  
*Stop Chernobyl Here*

May 26, 1993

James Taylor  
Executive Director of Operations  
Nuclear Regulatory Commission  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852

re: Petition for Immediate Action under  
10 C.F.R. §2.206

Dear Mr. Taylor:

On behalf of We the People, Inc., of the United States ("We the People"), this letter constitutes a formal petition pursuant to 10 C.F.R. §2.206 for immediate action to delay the scheduled start-up of Pilgrim Station in Plymouth, Massachusetts, or, in the alternative, to order its immediate shutdown if it is permitted to start-up before this petition can be acted upon. For the reasons set forth below, We the People believes that the continued operation of Pilgrim Station represents an unacceptable risk to the public health and safety.

By way of background, I am sure you are aware that I wrote to Chairman Ivan Selin on July 21, 1992 bringing to the personal attention of the Commissioners the problem of noncondensable gas build-up in the water level measurement systems of Boiling Water Reactors ("BWR's"). (Exhibit 1) While my letter to Chairman Selin also dealt with the problem in generic terms as it applies to all BWR's, it specifically relied upon our knowledge of the documented problems with the water level measurement system at Pilgrim.

Although it was not filed as such, my letter to Chairman Selin was treated as a petition for action under 10 C.F.R. §2.206 and referred to the attention of Thomas Murley, Director, Office of Nuclear Reactor Regulation, for action. On August 11, 1992, I received Mr. Murley's response. (Exhibit 2) That response denied the petition insofar as it allegedly asked for the immediate shutdown of all BWR's and indicated that the Commission would "take action with regard to specific issues raised in the Petition within

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a reasonable time." (Id.)<sup>1</sup>

On August 19, 1992, the Commission issued Generic Letter 94-02. This Generic Letter, issued while the issue was receiving a great deal of public attention, requested all BWR operators to take corrective action at the next shutdown that occurred 90 days after issuance of the letter. As I indicated to Chairman Selin in my letter of September 4, this action would be wholly without effect since it "requested" instead of "required" action. I cautioned that the BWR Owners' Group was already gathering its collective forces and considerable resources to delay implementation of any corrective action.

Unfortunately, my prophecies proved true. In November 1992, the Commission, far from the public limelight, voted to rescind the corrective mandate of Generic Letter 94-02 and to give the BWR Owners' Group several more months to simply study the problem.<sup>2</sup>

The Commission has repeatedly defended its action, or lack thereof, on this issue by contending that any water level errors would be small in magnitude and limited in duration. With respect to Pilgrim Station, the NRC has maintained that "a 29 inch spike (error) of continuous duration [in water level measurement] . . . would be required to uncover the core."<sup>3</sup> The NRC has further contended that such an error is highly unlikely. For example, the NRC has further concluded that "over 20 feet of reference leg volume . . . must be voided and not recovered to cause a continuous

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<sup>1</sup>/ I would note that my letter of July 21 did not make a unilateral call for the shutdown of all BWR's. It specifically requested that the Commission shut down any BWR that could not demonstrate its water level measurement system was operable, and could not further demonstrate that it had an adequate backup system in place. The Commission has never acted on my request for plant specific operability determinations, nor has it required any BWR to demonstrate that it has an adequate backup system for measuring water level in place. It is my understanding that any BWR which could not demonstrate its water level measurement system was operable would be required to shutdown under its own licensing specifications. Indeed, I pointed all of this out in a letter to Chairman Selin, dated September 4, 1992. (Exhibit 3)

<sup>2</sup>/ It should be noted that the extension was granted even though the Owners' Group only proposed to study the nature of the problem and not to study corrective measures. Further, the NRC staff expressed doubt about the nature of the studies and whether they would produce any practical data.

<sup>3</sup>/ Letter from Charles Hehl, Director of Reactor Projects, NRC, to Roy Anderson, Senior Vice President, Boston Edison (April 8, 1992).

14 inch level error . . . ."<sup>4</sup>

At a public meeting with NRC staff held in Plymouth in February 1993, the public was informed that the NRC had based its determination that continued operation of all BWR's did not pose a safety threat on a generic analysis conducted by the Owners' Group. According to NRC staff, that analysis concluded that the errors would be measured in inches, not feet, and that the errors would be self-correcting within a short period of time.

These assurances were given despite the fact that on January 21, 1993, Washington Nuclear Power, Unit 2, reported a significant event in which it observed a water level error that was more than one hour in duration.<sup>5</sup> The error that was observed also was significantly larger than those previously observed.

Also during the public meeting of February 1993, I specifically requested that the NRC provide the information used by Pilgrim to make an operability determination on its water level measurement system as required by plant technical specifications and NRC Generic Letter 91-18. I indicated my desire to have this information made available so an independent analysis of that operability determination could be conducted. This information has never been provided despite the fact that a local advisory committee, appointed by town officials from communities in close proximity to Pilgrim, made a formal request for this information under the Freedom of Information Act. I only can conclude from the NRC's failure to provide this information that it either does not exist, or it would not withstand independent scrutiny.

An even more alarming revelation occurred on May 12, 1993 when the Owners' Group met with the Advisory Committee on Reactor Safety ("ACRS")—an independent group that advises the Commission on matters related to nuclear safety. During a closed session of that meeting, it is my understanding that the Owners' Group and NRC staff confirmed that water level measurement errors could be on the order of 324 inches, or 27 feet.<sup>6</sup> It is further my understanding that neither the Owners' Group, nor the NRC staff, any longer believe that the error will correct itself with the passage of time.<sup>7</sup>

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<sup>4</sup>/ NRC Inspection Report, Pilgrim Station, No. 92-28 (January 28, 1993).

<sup>5</sup>/ Event Report No. 25094 (January 21, 1993).

<sup>6</sup>/ ACRS Transcript at p. 107 (May 12, 1993).

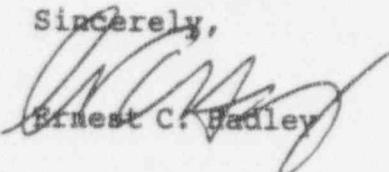
<sup>7</sup>/ Unfortunately, I must base my conclusions here on only the public portions of the record. Some portions of the meeting were conducted in executive session based on the Owners' Group assertion

Given these developments, I am requesting that the startup of Pilgrim be delayed until such time as Boston Edison completes hardware modifications designed to eliminate the water level measurement errors. As I am sure you are aware, Northeast Utilities implemented corrective action last year to eliminate the problem. Through subsequent testing, the NRC has confirmed that the corrective action taken at Millstone I works. According to Ashok Thadani, Director, Divisions of Systems Safety and Analysis, NRR, the Millstone modifications are both inexpensive and effective.

There is no reason that Pilgrim should be permitted to continue to operate without making these modifications. Based on the availability of current information, including information disclosed at the May ACRS meeting, there is now substantial reason to believe that water level errors are of such a magnitude as to lead an operator to believe that core is covered when, in fact, water level in the reactor core is dangerously low.

On behalf of We the People, as well as on behalf of all the people who live in close proximity to Pilgrim, I request that the Commission not permit Pilgrim to restart until the appropriate hardware modifications are made. In the alternative, I request, that if Pilgrim is permitted to restart, that the Commission order its immediate shutdown until the appropriate hardware modifications are made.

Sincerely,

  
Ernest C. Hadley

cc: S. Comley  
Gov. William Weld  
Sen. Edward M. Kennedy  
Sen. John F. Kerry  
Rep. Edward J. Markey  
David Williams, IG  
Ben B. Hayes, OI

enclosures as noted

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that the information being discussed, generic analysis, were somehow "proprietary" in nature. The terms "generic" and "proprietary" would appear to be mutually exclusive.

*Ernest C. Hadley*  
*Attorney at Law*

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 WAREHAM, MA 02571  
 508-291-1354

July 21, 1992

Ivan Selin, Chairman  
 U.S. Nuclear Regulatory Commission  
 One White Flint North  
 11555 Rockville Pike  
 Rockville, MD 20852

VIA TELEFAX & EXPRESS MAIL

Dear Chairman Selin:

I am writing to you in my capacity as legal counsel to We The People, Inc., of the United States ("We The People") and Paul M. Blanch, Supervisor of Instrumentation and Control Engineering, Northeast Utilities to request the immediate and personal intervention of you and your fellow Commissioners in a matter with potentially catastrophic dimensions if it continues to go ignored. For over three years, the Commission has been aware that significant errors may occur in the pressurizer level measurement due to deficient condensate pots in Pressurized Water Reactors ("PWR's"). Despite numerous reports to the NRC on the potential dangers posed by this problem, the Commission has refused to act. The Commission's failure to act was brought to the attention of the NRC Inspector General Office in December 1991, as well as April and June 1992.

The problem with condensate pots, when coupled with an existing problem with Rosemount transmitters on Boiling Water Reactors ("BWR's"), represents a significant risk to the public. For the reasons set forth below, I believe that the only responsible action the Commission can take on this issue is to order all utilities (PWR's and BWR's) to immediately determine the operability of their level instruments. If the utilities cannot determine the operability of the level measurements in light of the most recent data, they must declare the instruments inoperable and comply with plant-specific technical requirements.

As you undoubtedly know, the condensate pot is a section of pipe approximately ten inches long and three inches in diameter. The pot is connected to the reactor in a BWR or the pressurizer in a PWR by a one inch connection. The purpose of the pot is to condense steam from the reactor core or pressurizer to provide a constant reference for level measurement. The level in this reference leg is compared to the actual water level in the BWR or

PWR and is converted to an electronic signal by a device, which is typically a Rosemount transmitter. A decrease in the reference leg level will, in turn, cause a false high level reading of the actual reactor water level.

The output of the Rosemount transmitter on a BWR provides a signal which is used to initiate reactor protection ("RPS"), emergency core cooling systems ("ECCS"), information to the operator to determine if the core is covered and the final backup system called ATWS. All of the protective functions rely on an accurate level indication and are initiated upon the detection of a low level in the reactor.

For the past three years, the nuclear industry and the NRC have been aware that the gases in the condensate pot will be absorbed in the reference legs over time. The end result is that when pressure is rapidly released during an accident, a large amount of liquid is also released causing a significant loss of the reference legs. This loss of the reference legs causes the false high level indication noted above. The errors in this loss are so great that, during an event or accident, all indicators would tell the operator that the core is fully covered when in fact a meltdown may be occurring. In BWR's in particular, there is no other system which will indicate that the core is not covered. Further, operators have not been trained to deal with such a situation.

The NRC has been fully aware of this situation since February 1, 1989, when Westinghouse, informed all its reactor operators that significant errors may occur in pressurizer level measurement due to the absorption of gasses. Absolutely no action was taken by the Commission at this time, even though other reactors, such as those designed by General Electric, use the same type of condensate pot configuration.

In March 1991, Northeast Utilities, the operator of Millstone Unit 3, confirmed that the problem existed and evaluated its safety significance. Due to the safety significance and the fact that the pots were not operating as designed, Northeast Utilities eliminated the condensate pots and installed a configuration to prevent the absorption of gases. An identical situation was determined to exist at Connecticut Yankee and the condensate pots also were eliminated at that location. The cost to Northeast Utilities for these modifications was in excess of \$1 million at a time of cost containment.

On March 18, 1991, a Licensing Event Report ("LER") was issued by Northeast Utilities to the NRC under 10 C.F.R. §50.73. During approximately the same time frame, Mr. Blanch informed the Millstone resident NRC inspector that the problem was industry-wide and that other utilities must be informed. Mr. Blanch also telefaxed a copy of the LER to Scott Newbury, NRC Chief of Instrumentation and Controls, and further alleged that the problem

was generic and again stressed that the industry must be informed. Mr. Newbury indicated to Mr. Blanch that he saw the potential safety significance of the problem and assured Mr. Blanch that the situation would be handled promptly and properly.

In the late spring of 1991, Northeast Utilities issued a notice to all nuclear power plants in the world through INPO Nuclear Network alerting them to the potential safety problem posed by the condensate pots. As of this point in time, the NRC had taken no action, despite the fact that both Westinghouse and one utility utilizing the condensate pots had taken actions to notify other operators of the problem.

During the summer of 1991, Mr. Blanch made numerous telephone calls to personnel in NRC, Region 1, and the Office of Nuclear Reactor Regulation reiterating his concern about the safety of PWR's and the condensate pot problem. Still no action was taken by the Commission. On October 15, 1991, Mr. Blanch met with Region 1 technical personnel as well as Eugene Kelly and Ed Wensinger in King of Prussia, Pennsylvania. During this meeting, Mr. Blanch explained the technical issue and his continuing safety concerns to NRC Region 1 personnel.

As I am sure you are well aware, during this same period of time, Mr. Blanch also brought to the attention of the NRC the fact that there was a high failure rate among Rosemount transmitters. Although the actual failure rate of the Rosemount transmitters and the condensate problem are not related, the required interaction of those systems combines to greatly increase the risk of a significant accident.

In late November 1991, Mr. Newbury, Robert Perch, and Guy Vissing of the NRC met with officials at Northeast Utilities to explain the status of their review of the Rosemount issue and to obtain a more detailed technical assessment of the condensate pot problem. During this meeting, Mr. Blanch again expressed his concern that no action was being taken on either issue. Mr. Newbury indicated that a draft Bulletin would be issued by the end of the year on the Rosemount transmitter situation and that the NRC would continue to evaluate the condensate pot problem.

On December 19, 1991, Mr. Blanch gave testimony, at the offices of Northeast Utilities, to agents from the Office of Inspector General, NRC. During this interview, once again Mr. Blanch expressed his concern that NRC staff was ignoring major safety issues. He specifically referenced both the Rosemount issue and the condensate pot problem, along with other issues.

In late February or early March 1992, Mr. Newbury called Mr. Blanch and stated that the NRC had reviewed the condensate pot issue and had decided that it did not pose a safety problem, and that there would be no further action. Mr. Blanch has been informed that Mr.

Newbury initiated a telephone conversation with General Electric on or about February 11, 1992 during which this issue was discussed. Certainly, an informal telephone call is not an appropriate means of dealing with a significant safety issue.

In April 1992, Mr. Blanch met with Leo Norton and Kent Walker of the NRC Office of Inspector General in my offices. Mr. Blanch again reviewed the situation with the Rosemount transmitters and the condensate pot problem. During this meeting, Mr. Blanch also provided the Inspector General with specifics relating to possible Commission tampering with safety investigations.

On May 22, 1992, Mr. Kelly, NRC, Chief, Reactor Projects for Pilgrim and Vermont Yankee, met with Mr. Blanch and asked him if he was aware of the problem with condensate pots at Pilgrim Station in Plymouth, Massachusetts. Mr. Blanch contacted technical staff members at Pilgrim and received data from Pilgrim regarding the problem. From his review of the data provided by Pilgrim, Mr. Blanch concluded that the cause of the problem was the absorption of gas in the reference legs. In mid-June 1992, Mr. Blanch relayed this conclusion to Mr. Kelly. During this conversation, Mr. Kelly asked Mr. Blanch if Pilgrim was "flying blind." Mr. Blanch agreed that indeed it was. Later that same week, Mr. Blanch sent Mr. Kelly a note indicating that, in his opinion, all BWR's may be "flying blind."

Also during this same time period, Mr. Blanch called William Russell at NRR and informed him of his concern that the level measurements in BWR's and PWR's will not work in depressurization events. It is Mr. Blanch's understanding that, from a technical standpoint, Mr. Russell agrees that if the condensate pots are elevated above the vessel penetration, as they are in most BWR's and PWR's, they will become bound with noncondensable gases. It is also Mr. Blanch's understanding that Mr. Russell agreed that it would be appropriate for the NRC to inform utilities of this problem. To our knowledge, no such notification has ever occurred.

On June 26, 1992, Mr. Blanch and I had a telephone conversation with Special Agent Kent Walker of the NRC Office of Inspector General. Once again, we expressed our concern that the Commission was taking absolutely no action to address this problem. In particular, I indicated to Mr. Walker that I understood the actual problem with condensate pots was not within the jurisdiction of his Office but that I firmly believed that it was within the jurisdiction of his Office to determine the reasons for delay in Commission action.

On July 15, 1992, Northeast Utilities completed an evaluation of the impact of the condensate pot problem on Millstone Unit 1. It was determined that reactor level indicators will read almost 20 feet greater than the actual water level in the reactor during accident conditions. For most BWR's, this reading would

effectively defeat many safety systems and emergency core cooling systems and the operator would have no indication that the core was uncovered. At the present moment, Millstone Unit 1 is on a scheduled shutdown for other reasons. It is my understanding that it is the intent of Northeast Utilities to take actions to correct the problem during this shutdown. It is further my understanding that had a shutdown not been scheduled, it was the opinion of Mr. Blanch and Northeast Utilities that the condensate pot problem alone would have warranted shutdown for correction.

The NRC is fully aware of the problem at Pilgrim. In fact, the NRC is further aware that the problem at Pilgrim is enhanced by the fact that a few years ago the YARWAY backup level monitoring system was removed from Pilgrim because of problems with that system. In the event of a mishap, there is virtually a 100% chance at Pilgrim that the condensate pot problem will result in a failure of the emergency core cooling system and that all measurements will tell the operators that the core is covered when in fact a meltdown may be underway.

It is now summertime on Cape Cod - just a few short miles from Pilgrim. Thousands of families with their children and senior citizens are currently enjoying their vacations on the Cape. The Cape is connected to the mainland by only two small bridges. In the event of accident at Pilgrim, who will decide whose children and parents are among the privileged few to cross those bridges and travel out of harm's way?

The people of Connecticut are indeed fortunate that management at Northeast Utilities has taken a responsible course on its own initiative with respect to the problem. You are well aware that Mr. Blanch was the individual to identify the Rosemount transmitter issue and the fact that the failure rates of those devices violates NRC regulations. In contrast to the Rosemount issue, it is neither the obligation or responsibility of Mr. Blanch or Northeast Utilities to inform the industry of a significant safety issues. That is the obligation and responsibility of the Commission. I note that in the Yale Alumni Magazine, (Summer 1992) you were quoted as saying, "[t]he only way to restore public confidence in [nuclear] technology is to insist on safety, safety and more safety." It is not just the technology in which people have lost confidence; it is the Commission. Confidence will not be restored as long as people like Mr. Blanch are required to suffer the turmoil, harassment, personal embarrassment, and legal expense of pursuing safety issues which the Commission continues to ignore.

Must those of us who live in the shadow of Pilgrim wait for Boston Edison to follow the lead of Northeast Utilities? And what of the people who live near Vermont Yankee, Nine Mile Point, Fitzpatrick and all other reactors in the world? Must they also wait for the utility companies that operate these facilities to place safety over profits, while the Commission, which has a congressional

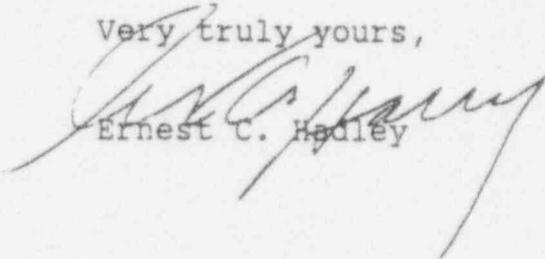
mandate to protect the public health and safety, stands idly by?

On behalf of We the People, I call upon you and your fellow Commissioners to take immediate action. The only prudent course of action is to order the immediate shutdown of any reactor that cannot affirmatively demonstrate that it has operable condensate pots or has in place an adequate backup system that will accurately measure the water level in the core in the event of a mishap. Any lesser action is nothing short of a gamble that pits utility profits against public health and safety.

Three years has been more than adequate time for the Commission to deal with this issue. During that time, Mr. Blanch has taken every reasonable measure to have the problem addressed through proper channels. Urgency brings the time for working through channels to an end. It is for this reason that I bring this appeal directly to you and your fellow Commissioners.

I await your prompt response.

Very truly yours,

  
Ernest C. Hadley

cc:

K. Rogers, NRC  
J. Curtiss, NRC  
F. Remick, NRC  
G. DePlanque, NRC  
Pres. G. H. W. Bush  
Sen. J. Glenn  
Sen. J. Lieberman  
Sen. C. Dodd  
Sen. E. Kennedy  
Sen. J. Kerry  
Sen. A. Gore  
Rep. P. Kostmayer  
Rep. J. Dingell  
Rep. E. Markey  
Rep. G. Studds  
Rep. B. Frank  
Rep. T. Andrews  
Gov. W. Weld  
Gov. L. Wiecker  
Gov. B. Clinton  
Gov. M. Cuomo  
Gov. H. Dean  
W. Sherman, St. of Vt.  
L. Norton, NRC, IG  
W. Ellis, CEO-NU  
J. Opeka, Ex. V.P.-NU  
P. Blanch



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555

August 11, 1992

Mr. Ernest C. Hadley  
414 Main Street  
P.O. Box 3121  
Wareham, Massachusetts 02571

Dear Mr. Hadley:

I have received your letter of July 21, 1992, to the Chairman of the U.S. Nuclear Regulatory Commission (NRC) on behalf of We The People, Inc., and Mr. Paul M. Blanch (Petitioners), concerning inadequate monitoring of core coolant level at many power reactors nationwide. Though your letter does not invoke 10 CFR 2.206, it was referred to my office for consideration as a petition submitted pursuant to 10 CFR 2.206.

The Petitioners allege that many reactor licensees rely on condensate pots as part of reactor level instrumentation to monitor core coolant level; that many of these licensees have no alternative means to monitor coolant level; that non-condensable gases in the condensate pot will be absorbed in the reference legs over time; that when pressure is rapidly released during an accident, a large amount of liquid is pushed out of the reference leg, causing a significant decrease in reference leg level and a false high coolant level indication; that for most boiling water reactors (BWRs), the false indication would effectively defeat many safety systems and emergency core cooling systems (ECCSs); that operators have not been trained to deal with the false indications; and that, in an accident, operators would be unable to accurately assess core coolant level because of the above. Moreover, the Petitioners assert that Rosemount transmitters, which are commonly relied on as part of coolant level monitoring systems, are highly unreliable, and their interaction with "the condensate pot problem" greatly increases the risk of a serious accident. The Petitioners assert that the NRC has ignored repeated warnings of these problems since at least early 1989, failing to notify licensees or to take other appropriate action.

On the basis of these allegations, the Petitioners request that the NRC order the immediate shutdown of any reactor (BWR and pressurized water reactor (PWR)) whose licensee cannot affirmatively demonstrate that it has operable condensate pots or has in place an adequate backup system that will accurately measure the water level in the core in case of a mishap.

The NRC staff held a public meeting with the Regulatory Response Group (RRG) of the Boiling Water Reactors Owners Group (BWROG) on July 29, 1992, to discuss the effect of inaccuracies in the reactor vessel level instrumentation system in BWRs. During the meeting, the BWROG and its consultant, General Electric Company (GE), presented the results of analyses assessing the safety implications of the postulated error in level indication. The analyses consisted of two basic parts: (1) an assessment of the mechanism and potential magnitude of errors in the level instruments, and (2) a review of the relevant licensing-basis transients and accidents to determine the effect of this error on plant response, including post-accident operator actions.

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Exhibit 2

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The BWROG analyses indicated that significant errors in level indication can occur as a result of the evolution of non-condensable gas in the instrument reference leg if the reactor abruptly depressurizes well below 450 psig. The NRC staff reviewed the relevant design basis accident scenarios which lead to lowering reactor vessel water level and has concluded that automatic safety system initiation will occur at pressure levels well above 450 psig, even for the postulated worst-case non-condensable gas concentration in the reference legs. Therefore, the NRC is confident that all emergency cooling systems will initiate as they were designed to do. In addition, the BWROG discussed diverse signals which would also initiate ECCS for reactor water level lowering events. The NRC staff reviewed the backup systems and concluded that the ECCS would be initiated by diverse signals as analyzed by the BWROG.

After ECCS actuation, reactor water level indication is used by the operators for long term actions (i.e., maintaining adequate reactor water level and ensuring adequate core cooling). Several factors led to the NRC staff judgment that the operators would take appropriate actions to maintain adequate core cooling. First, the expulsion of water from the reference leg column requires nearly total instantaneous depressurization. Operators would not utilize only reactor vessel level indications to determine accident mitigation actions for design basis accident scenarios which involve total or instantaneous depressurization. In this case, operators would also utilize other indications such as containment pressure, temperature, and humidity to determine accident mitigation strategies. Design basis accident scenarios characterized by gradual depressurization would lead to a reduced expulsion of the liquid from the reference leg column (i.e., reduced error in the indicated level). Second, there are two or four reference leg columns in each plant, depending on plant design. The amount of non-condensable gases dissolved in each depends primarily upon leakage and geometry. Therefore, it is unlikely that two or more level indications would behave erroneously in the same manner. Finally, emergency procedure guidelines (EPGs) state that when reactor vessel water level is indeterminate, operators should flood the reactor vessel using at least one pump guided by the unaffected diverse instrumentation (i.e., high containment pressure indication). Reactor operators are trained to deal with these situations should they occur. For the reasons stated above, the NRC staff concludes that it is not necessary to immediately shut down any BWR facilities. However, the NRC staff noted at the public meeting with the RRG of the BWROG on July 29, 1992, that this is an important issue which needs to be addressed promptly both generically and on a plant-specific basis. The NRC staff concluded that the following timeframe was reasonable for addressing these issues:

1. Within 7 days of the July 29, 1992 meeting (August 5, 1992), the BWROG should review the meeting transcript, submit a written statement of all actions to be taken by the BWROG, and confirm the acceptability of the approach described in items 2 to 4 below to resolve this issue. The BWROG responded on August 5, 1992, and the response is currently under NRC staff review.

2. Within 14 days (August 12, 1992), the BWROG should provide its plan and schedule for addressing each item.
3. Within 30 days (August 28, 1992), the BWROG should submit a generic report containing responses to questions related to EOPs, commitments to training, or other items that were part of the BWROG rationale as to why there is no short term safety issue.
4. Within 30 days of receipt of the generic report (September 27, 1992), each licensee, on a docket-specific basis, should confirm that its plant-specific configuration is within the generic envelope and that the generic analyses apply. If the analyses do not apply, the licensee should describe what actions are being taken to address the issue.

The Petitioners assert that significant errors may occur in the pressurizer level measurement system due to deficient condensate pots in PWRs. Westinghouse and Combustion Engineering performed engineering evaluations and concluded that during a rapid depressurization of the reactor coolant system (RCS) during certain design basis accidents, the release of non-condensable gases could result in a level indication error of about 40 percent of full scale. The NRC staff evaluated the effects of this error and concluded that the only potentially unacceptable actions that could be taken by operators as a result of this error are prematurely terminating safety injection or failing to re-initiate safety injection if required. The NRC staff further concluded that the pressurizer level instrumentation is not used as the primary parameter by operators for safety injection termination and that PWR EOPs direct operators to consult other instrumentation and parameters (reactor vessel level monitoring system, RCS subcooling, and a stable or increasing RCS pressure) prior to terminating safety injection. The NRC staff concludes, for the reasons discussed above, that the safety significance of this error is small and that it is not necessary to immediately shutdown any PWR facilities.

The Petitioners also assert that Rosemount transmitters, which are commonly relied on as part of the coolant level monitoring system, are highly unreliable. In March 1990, the NRC issued NRC Bulletin 90-01, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount," to all holders of operating licenses or construction permits for nuclear power reactors. In that bulletin, the NRC requested that specific groups of transmitters that had been identified by the manufacturer as more susceptible to oil loss failure, or identified by the licensees as suspected of oil loss, be replaced in the critical safety systems. The NRC also requested that enhanced surveillance programs be established for the remaining Rosemount transmitters subject to the bulletin. The NRC considers the actions taken by the licensees for operating reactors to address the important safety concerns. Since the NRC issued Bulletin 90-01, the NRC has continued to review this issue extensively to ensure that these pressure sensors will perform reliably. The NRC staff issued a draft Bulletin Supplement for public comment on April 7, 1992. The comments received have been reviewed and evaluated by the NRC staff and a meeting with members of the public was held on July 23, 1992, at the NRC

August 11, 1992

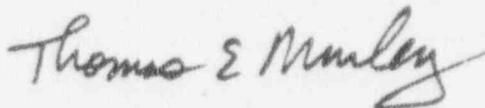
offices in Rockville to describe how the Bulletin Supplement would be modified. In addition, several areas were identified that required further clarification. While the Bulletin Supplement will identify additional licensee actions which should be taken, the NRC staff has concluded that licensee actions to date have reduced the likelihood of this type of failure by improving surveillance testing to detect this failure and by replacing transmitters in critical safety systems that were identified as being susceptible to oil loss failure such that the immediate shutdown of all facilities that use them is unwarranted.

The NRC also issued an Information Notice No. 92-54, dated July 24, 1992, to alert licensees to potential inaccuracies in water level indication in BWRs and PWRs after rapid depressurization events. The Information Notice stated that the NRC expects recipients to review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems.

On the basis of the RRG presentation on the effect of reactor vessel level instrumentation system inaccuracies in BWRs and the NRC staff independent analysis, the NRC staff concludes that the safety significance of this error is small and that it is not necessary to immediately shutdown any BWR facility. In addition, the NRC staff concludes that the inaccuracies in the pressurizer level monitoring system caused by rapid depressurization events in PWRs and errors related to Rosemount transmitters have limited safety significance and, therefore, do not warrant immediate plant shutdown.

Accordingly, the Petitioners' request for immediate action regarding shutdown of BWRs and PWRs is denied. As provided by 10 CFR 2.206, the NRC will take action with regard to the specific issues raised in the Petition within a reasonable time. For your information, I have enclosed a copy of the notice that is being filed with the Office of the Federal Register for publication.

Sincerely,



Thomas E. Murley, Director  
Office of Nuclear Reactor Regulation

Enclosure:  
Federal Register Notice

U.S. NUCLEAR REGULATORY COMMISSION  
ALL LIGHT WATER REACTORS

RECEIPT OF PETITION FOR DIRECTOR'S DECISION UNDER 10 CFR 2.206

Notice is hereby given that the U.S. Nuclear Regulatory Commission (NRC) has received a letter to NRC Chairman Ivan Selin, dated July 21, 1992, from Ernest C. Hadley, on behalf of We The People, Inc., and Mr. Paul Blanch (Petitioners). The Petitioners request "immediate shutdown of any reactor (boiling water reactor (BWR) and pressurized water reactor (PWR)) that cannot affirmatively demonstrate that it has operable condensate pots or has in place an adequate backup system that will accurately measure the water level in the reactor core in the event of a mishap." The Commission is treating the letter as a Petition requesting action under 10 CFR 2.206.

The Petitioners allege that many reactor licensees rely on condensate pots as part of reactor vessel instrumentation to monitor core coolant level; that many of these licensees have no alternative means to monitor coolant level; that gases in the condensate pot will be absorbed in the reference leg over time; that when pressure is rapidly released during an accident, a large amount of liquid is pushed out of the reference leg, causing a significant decrease in reference leg level and a false high coolant level indication; that for most boiling water reactors (BWRs), the false indication would effectively defeat many safety systems and emergency core cooling systems; that operators have not been trained to deal with the false indications; and that, in an accident, operators would be unable to accurately assess core coolant level because of the above. Moreover, the Petitioners assert that Rosemount transmitters, which are commonly relied on as part of coolant level monitoring systems, are highly unreliable, and that their interaction with "the condensate pot problem" greatly increases the risk of a serious accident.

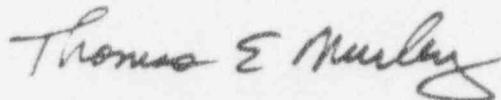
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On the basis of these allegations, the Petitioners request that the NRC order the immediate shutdown of any reactor whose licensee cannot affirmatively demonstrate that it has operable condensate pots or has in place an adequate backup system that will accurately measure the water level in the core in case of a mishap.

The Petition was referred to the Director of the Office of Nuclear Reactor Regulation for the preparation of a response. By letter dated August 11, 1992, the Petitioners' request for immediate action regarding BWR and PWR shutdown was denied. As provided by 10 CFR 2.206, appropriate action with regard to the specific issues raised in the Petition will be taken within a reasonable time.

A copy of the Petition is available for inspection at the Commission's Public Document Room located at the Gelman Building, 2120 L Street, NW., Washington, DC 20555.

FOR THE NUCLEAR REGULATORY COMMISSION



Thomas E. Murley, Director  
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland  
this 11th day of August 1992

*Ernest C. Hadley*  
*Attorney at Law*

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September 4, 1992

Ivan Selin  
 Chairman  
 U.S. Nuclear Regulatory Commission  
 One White Flint North  
 11555 Rockville Pike  
 Rockville, MD 20852

Dear Chairman Selin:

I am disappointed, though not surprised, by the August 11, 1992 response from Thomas Murley, Director, Office of Nuclear Reactor Regulation, to my letter to you of July 21, 1992 on behalf of We The People, Inc., of the United States and Paul M. Blanch regarding significant errors that may occur in water level measurement in both Pressurized Water Reactors ("PWR") and Boiling Water Reactors ("BWR"). I am writing this letter to you on behalf of We The People. The views expressed in the letter are those of the organization, as well as my own views.

Frankly, I believe your lack of a response and the response of Mr. Murley demonstrate the contempt in which the Commission holds the public. Obviously, the Commission believes that the issues raised by nuclear power are too complex for the general public to understand and, thus, ignores, minimizes, and belittles those comments.

Let me make it clear that as a lawyer who, over the past several years, has had some substantial dealings with the Commission, I am fully aware of 10 C.F.R. §2.206. Had I wished to file a petition under that section, I am fully capable of doing so. I specifically chose not to do so because I believed the issues raised by my letter were significant enough that they should not continue to be dealt with by staff, but should receive the direct and personal attention of the Commission members who are appointed by the President with the advice and consent of the Senate, and who are directly responsible to the public which they supposedly serve. I believe that any fair reading of my letter to you raised two significant issues: first, the letter raises a significant safety concern regarding the ability of nuclear plant operators to accurately determine the water level in reactors in the event of an accident; also, my letter raises the even more important issue of

the fact that the Commission has long term knowledge of this problem and has done absolutely nothing about it. By treating my letter as a petition under Section 2.206, the Commission has, once again, attempted to sidestep the issue of its complicity in ignoring significant safety concerns within the industry.

Please let me explain my conclusion that the Commission views members of the public with contempt to be dealt with as annoyances, radicals, and reactionaries. As I am sure you are aware, 10 C.F.R. §2.206 provides that requests to modify, suspend, or revoke a license shall specify the action requested and set forth the facts that constitute the bases for that request. It certainly seems to me that if the Commission had determined that my July 21 letter should be treated as a petition under Section 2.206, that I should have been informed of that fact and given the opportunity to set forth the specific facts and supporting evidence for any request under that section. Obviously, I was never given such an opportunity. The first time I became aware that my letter was being treated as a petition was when I discovered that Mr. Murley had denied that petition. Could it be that Mr. Murley and this Commission are apprehensive about what facts may actually be presented if I were given the opportunity? Or, could it be that Mr. Murley and this Commission simply think that, as a layman, I am not capable of cogently presenting a factual basis for a Section 2.206 petition?<sup>1</sup>

It is further my observation that the Commission was far more interested in receiving publicity than in making any cogent response to my letter. I first learned of Mr. Murley's letter of August 11, 1992, when I began receiving calls from newspapers and wire services asking me to comment on the letter. Those reporters informed me that the NRC had telefaxed copies of the letter to their respective newspapers and news services. I, however, did not receive a copy of Mr. Murley's letter until August 17, 1992. Surely, in the age of telefax machines and express mail, it would have been a simple courtesy to insure that I had received a copy of Mr. Murley's letter prior to its public release, or at least simultaneous with that release.

I was in attendance at the meeting of July 29, 1992, where the Boiling Water Reactor Owners Group ("BWROG") made its presentation to NRC technical staff on the problem of non-condensable gases and its effect on water level measurement. Please let me take issue

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<sup>1/</sup> Where, by contrast, it is interesting to note that a letter I wrote to you on August 14, 1992 requesting enforcement action on behalf of another client of mine also has been treated as a petition under 10 C.F.R. §2.206. By letter dated August 31, 1992, from James Lieberman, Director, Office of Enforcement, I have been given the opportunity to present evidence in support of the petition.

with a few statements in Mr. Murley's letter with regard to that meeting. First, Mr. Murley characterizes that meeting as a "public meeting." No one should suffer under the misconception that the public in any way participated in that meeting. The meeting, plain and simple, was a "dog-and-pony show" put on by the BWROG. One of the very first statements made at that meeting by Ron Eaton, Project Manager for Pilgrim Nuclear Power Station, was that the public would not be allowed to participate in the meeting. Many, including myself, had traveled to this meeting at great expense under the clear impression, pursuant to the meeting notice, that members of the public would be "participants" in the meeting. Frankly, most of us could not hear what was going on in the meeting. The meeting was held in a room with abysmal acoustics and speakers continually refused to make any effort to speak loudly enough so they could be heard. At one point in the meeting, I approached Mr. Eaton and I specifically requested that he ask the panel to make an effort to speak louder, since many persons in the room could not hear the presentation or the questions by the NRC staff. Mr. Eaton refused to do this on the basis that it would do no good. When the public can neither participate nor effectively observe the proceedings of a meeting, I do not believe that meeting can fairly be characterized as "public."

It further appears to me that Mr. Murley has created a "straw man" by mischaracterizing my letter of July 21, 1992, as a request for the immediate shutdown of virtually all reactors, and then denying that request. Clearly, my letter of July 21 calls for a three step process: first, I requested that the Commission require each utility to affirmatively demonstrate that its condensate pot system works; second, if a utility could not make such a demonstration, I requested that the Commission require the utility to affirmatively demonstrate that it has backup system which would accurately measure water level in the event of an accident; and finally, I requested that the Commission shut down any reactor that could not meet either of the first two criteria. Indeed, it is my belief that most of the plant-specific technical license requirements of utilities would require them to go to cold shutdown within a short period of time after determining that their level measurements are inoperable. I referenced that fact in the very first page of my letter.

None of this, however, was addressed in Mr. Murley's response. By focusing only on that portion of my letter maintaining that reactors which could not meet the established criteria should be shutdown, Mr. Murley attempted to make it appear as though We The People was a reactionary group seeking to close down the nuclear industry, rather than a responsible, safety advocacy group seeking to be a constructive part of any resolution. Such characterizations do little to bolster the public's confidence that any constructive dialogue will ever occur with this Commission.

As far as I am aware, to this date, the Commission has failed to

request that a single utility make an operability determination of its water level measurement instrumentation. Could this be because the Commission believes, as I do, that not a single utility, with the exception of Northeast Utilities which has made hardware modifications to correct the problem, could demonstrate that it has an operable water level measurement system?

At page two of his letter, Mr. Murley indicates that the BWROG analysis was reviewed by NRC staff, which concluded that automatic safety system initiation would occur even for the "postulated worst-case non-condensable gas concentration in the reference legs." Lest anyone suffer under any illusions, it should be made clear that the staff analysis took all of fifteen minutes. This was approximately the amount of time that the meeting was recessed after the BWROG presentation for the staff to consider course of action it would take. There are some of us who would believe that significant errors in the level measurement systems of reactors require more than fifteen minutes of the Commission's attention. The fifteen minute review was particularly surprising given the number of questions that the Owners' Group seemed unable to answer during its presentation of July 29, 1992. For example, Mr. Murley indicates in his letter of August 11 that significant errors in the level indication do not occur above 450 psig. However, as Mr. Russell pointed out during the July 29 meeting, this assumption is based on data reviewed from plant shutdowns where there is only a gradual depressurization. It seems to me that a logical conclusion from Mr. Russell's comments and questions is that the level of the error would likely increase if the depressurization was rapid such as in an accident.

In his letter of August 11, Mr. Murley goes on at some length to explain how operators will ignore the faulty reading given by the water level instruments and take appropriate action in any event. First, he notes that the operators would use other indications aside from water level measurement to determine the appropriate course of conduct. It is true that operators look at several readings to determine what should be done next. Supposedly, these numerous readings are required because no single reading, standing alone, gives the operator sufficient information on which to base a decision. To say that there are multiple systems, does not address the question of the effect on the operator's judgment when one of those systems does not function properly.

Mr. Murley also takes comfort in the fact that there are usually two or four reference leg columns in each plant and "it is unlikely that two or more level indications would behave erroneously in the same manner." Somehow, I do not take the same comfort in knowing that an operator may be faced with multiple erroneous readings. Which one is the operator to believe?

Finally, Mr. Murley relies on the fact that if water level is "indeterminate" then operators are instructed to flood the reactor

vessel using at least one pump. Since the water level instruments will continue to give measurement readings, albeit erroneous ones, it is unclear to me how an operator is to know that the reading is erroneous and, therefore, the water level is indeterminate.

One of the most incredible things about the Commission's response to this problem is that no one seems to dispute that the phenomenon of non-condensable gases will give rise to false high level readings. I have not heard a single person, including anyone from this Commission, even vaguely suggest that the phenomenon described by Mr. Blanch does not occur. Moreover, it seems that everyone is in agreement that there are circumstances under which this phenomenon can result in significant errors in water level measurement. Given these facts, I find it very difficult to understand the Commission's apparent philosophy that the public should be required to demonstrate that nuclear power plants are unsafe. It seems to me that things should be the other way around; that is, the operators of power plants should be required to affirmatively demonstrate to the public and this Commission that their plants are safe.

Subsequent to Mr Murley's letter to me on August 11, the Commission issued Generic Letter number 92-04 on August 19, 1992. According to the Generic Letter, the effects of the non-condensable gases in the level instrumentation system could result in BWR's not satisfying 10 C.F.R. Appendix A, General Design Criterion 13, "Instrumentation and control," GDC 21, "Protection system reliability and testability," GDC 22, "Protection system independence," and 10 C.F.R. § 50.55a(h). Despite these findings, the Commission has ordered no corrective action. According to the Generic Letter:

Each licensee should provide its plans and schedule for corrective actions, including any proposed hardware modifications necessary to insure the level instrumentation system design is of high functional reliability for long term operation. Since this instrumentation plays an important role in plant safety and is required for both normal and accident conditions, the staff recommends that each utility implement its longer term actions to assure a level instrumentation system of high functional reliability at the first opportunity but prior to starting up after the next refueling outage commencing three months after the date of this letter.

It is unclear why, if the Commission has determined that the problem of non-condensable gases potentially violates three regulatory design criteria and one other regulation, that these are merely "requested" actions and not required actions.

It is further unclear why this "requested" action was not included

as part of Mr. Murley's dispensation of my letter which was treated as a Section 2.206 petition. Could it be that the Commission does not want to acknowledge the role of the organization that I represent in bringing about changes that are important to plant safety?

Already, the Owner's Group has seized upon the "actions" outlined in the Generic Letter and expressed its clear intent to do nothing to correct the hardware deficiencies unless compelled to do so. In a response to William T. Russell, Associate Director, Inspection Technical Assessment, dated August 12, 1992, and available in the NRC Public Document Room, the Owners have outlined an approach to the problem which requires additional study until June 1993. The Owners clearly indicate their intent to resist any hardware modifications, unless and until, all of its studies can make the problem go away.

Lost in this maze of studies is the reason why water level measurement instrumentation was initially mandated by the Commission. As you may recall, inadequate information on water level led to operator errors that significantly compounded the accident at Three Mile Island. Additional studies will not change the chemistry or physics which leads to problem of non-condensable gases. Additional studies will only further jeopardize the public by delaying corrective action.

Also, the Commission continues to ignore the problems identified with the respect to pressurizer level on PWRs. As identified by Westinghouse in its letter of February 1, 1989, this failure may result in a loss of the primary system pressure boundary due to the fact that the pressurizer heaters may not be de-energized. This is one of the principle safety barriers which is in jeopardy, yet the NRC continues to ignore this potential problem.

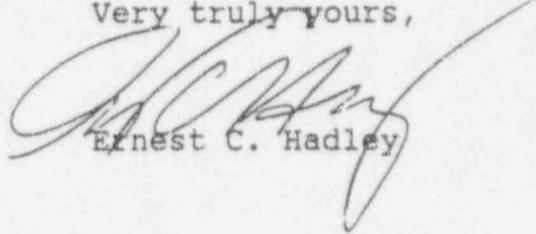
Of course, none of this addresses the issue that is at the heart of my letter of July 21. The Commission and its staff have clearly known of this potential problem for some time. However, it took no action whatsoever. In doing so, it has forced Mr. Blanch, a dedicated employee of Northeast Utilities and a respected engineer, to go to extreme lengths to insure that this problem is addressed. He has been required to risk his career and his credibility simply in an effort to see to it that this Commission does the job which Congress had directed it to do. I note that in an interview with the Boston Globe you were quoted as indicating that the "tenacity [of Mr. Blanch] in bringing up these issues has certainly been justified...and in large part through his tenacity, they've been taken seriously sooner than they otherwise would have been."

I ask you, Mr. Selin, when a nuclear worker needs to be as tenacious as Mr. Blanch in order to raise a significant safety concern with this Commission, is something not wrong? What of the worker with concerns who lacks the courage of Mr. Blanch? What of

the worker with concerns who lacks the credentials? How many problems are not receiving the attention of the Commission simply because they have no champion, such as Mr. Blanch?

The scientists and the engineers can figure out a way to correct the problem with non-condensable gases. Can we, the public, rely on you to figure out a way to correct the problems at the Commission?

Very truly yours,



Ernest C. Hadley

cc:

K. Rogers, NRC  
J. Curtiss, NRC  
F. Remick, NRC  
G. DePlanque, NRC  
Pres. G. H. W. Bush  
Sen. J. Glenn  
Sen. J. Lieberman  
Sen. C. Dodd  
Sen. E. Kennedy  
Sen. J. Kerry  
Sen. A. Gore  
Sen. G. Mitchell  
Sen. W. Cohen  
Rep. P. Kostmayer  
Rep. J. Dingell  
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Rep. G. Studds  
Rep. B. Frank  
Rep. T. Andrews  
Gov. W. Weld  
Gov. L. Wiecker  
Gov. B. Clinton  
Gov. M. Cuomo  
Gov. H. Dean  
W. Sherman, St. of Vt.  
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