Congress of the United States
House of Representatives
Washington, DC 20515

March 3, 2004

The Honorable Nils J. Diaz
Chairman
Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852

Dear Chairman Diaz:

We are writing in regard to a proposed plan by the Nuclear Regulatory Commission (NRC) to dramatically weaken the fire protection regulations that are supposed to ensure that a nuclear reactor can be safely and automatically shut down in the event of a fire caused by a terrorist attack on or accident at a reactor.

On November 26, 2003, the day before Thanksgiving, the NRC issued a notice of opportunity for public comment entitled "Draft Criteria for Determining Feasibility of Manual Actions To Achieve Post-Fire Safe Shutdown" in the Federal Register. It provided 30 days in which the public could comment on proposed changes to NRC fire protection regulations to allow the nuclear industry to avoid replacing or repairing the combustible materials used to protect the safe shut down equipment of the reactor, and instead rely on the use of reactor personnel to shut down the plant in the event of a fire caused by a terrorist attack or catastrophic accident.

It appears that after discovering that many reactor licensees were out of compliance with the automatic safe-shutdown fire regulations, the Commission has decided to gut these regulations rather than force nuclear power plant operators to comply with them. As a substitute for the automatic safe shutdown of reactors on fire, the NRC is proposing that the reactors be allowed to rely on "Operator Manual Actions." This would assign reactor personnel the duty of rushing directly to the shut-down equipment located throughout the reactor complex to shut down the reactors manually, and would potentially take place in station areas affected by smoke, fire, and radiation and possibly under attack by terrorists. If these personnel fail to reach the shut-down equipment, the result could be catastrophic.

NRC has recently embarked on a publicity campaign to commemorate the 25th anniversary of the Three Mile Island accident, with publicity materials that claim the promulgation of fire protection regulations as number one on its list of safety improvements that were undertaken as a result of that accident (see http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/3mile-isle.html), even though the regulations were actually the result of the Browns Ferry reactor fire. We find it remarkable that at the same time the NRC claims to have improved fire protection

regulations as one of its post-Three Mile Island reforms, the Commission is simultaneously proposing to eviscerate these very same regulations.

Now is not the time to weaken fire safety at nuclear reactors. As you know, Al Qaeda continues to place nuclear reactors at the top of its terrorist target list, and whether the attack comes from a plane, truck bomb, or attack by armed terrorists, there is a strong likelihood that a fire would result. In addition, fires at nuclear reactors can also occur accidentally. The January 1991 NRC report entitled "Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants" (NUREG-1150) states that "it has been observed that typical nuclear power plants will have three to four significant fires over their operating lifetime." Moreover, NRC's probabilistic risk assessments indicate that fires contribute anywhere from 7%-50% of the total core damage frequency in nuclear reactors.

History

In 1975 at the Browns Ferry reactor, a fire burned uncontrolled for nearly eight hours. It started in a cable penetration seal consisting of flammable polyurethane foam and 'Flamemastic' coating. After that incident, the NRC required that fire barrier penetration seals in walls separating fire zones be fabricated of non-combustible materials, and the installation of qualified fire barrier materials to protect redundant cable trays and conduits in the same fire zone containing power, control and instrumentation electrical cabling used to shut down the reactor. The stated intent was to reasonably ensure that no single fire could disable a control room's ability to remotely and safely shut down the reactor in the event of fire at U.S. nuclear power plants.

However, many of these materials were later shown to be combustible and inoperable themselves. As early as 1991, it came to the attention of NRC that materials used as fire barriers for cable trays and conduits were non-compliant with the fire safety requirements of 10 CFR 50 Appendix R III.G.2. By 1992, the agency issued Bulletin 92-01 declaring Thermo-Lag 300-1 fire barriers "inoperable." In one response to these findings, the NRC took the remarkable step of ruling that these fire barrier penetration seal materials no longer needed to be non-combustible, and Rep. Markey sent a letter to then-NRC Chairman Shirley Jackson in May 1997 demanding to know why the Commission was allowing materials that were intended to provide fire protection but were instead a fire hazard to remain in reactors all over the country (see http://www.house.gov/markey/Issues/iss_terrorism_ltr970508.pdf).

By 1998, the Commission issued Orders requiring licensees to replace or repair Thermo-Lag 330-1 fire barriers. Apparently, instead of complying with these Orders (and without NRC approval), licensees decided to rely on Operator Manual Actions requiring reactor personnel to shut down the reactors manually in the event of a large fire.

In April 2000, the General Accounting Office (GAO) prepared a study at Rep. Markey's request entitled "Fire Protection: Barriers to Effective Implementation of NRC's Safety Oversight Process" (GAO/RCED-00-39). The report concluded that the NRC had not been adequately overseeing the licensees in the area of fire safety, that its new planned oversight process relied on risk assessments performed by the industry, and that standards for the risk assessments and performance indicators had not yet been developed. The study also found that many of the risk assessments put together by the industry only considered small fires.

The Current Situation

On June 17, 2003, the Commission received from William D. Travers, the Executive Director for Operations, a Rulemaking Issue Memo number SECY-03-0100 entitled "Rulemaking Plan on Post-Fire Operator Manual Actions." This document requested NRC approval of a staff plan to alter fire protection requirements contained in Appendix R of 10 CFR Part 50 to "resolve a regulatory compliance issue," and an interim enforcement policy "to exercise enforcement discretion related to the fire protection compliance issue pending completion of rulemaking."

NRC regulations currently allow for three methods to ensure that a reactor can be safely shut down in the event of a fire: 1) separation of redundant systems (each of which could safely shut the reactor down) by a passive fire barrier that could withstand a fire for at least three hours; 2) separation of the redundant systems by at least 20 feet containing no intervening combustible material, together with fire detection and an automatic fire suppression system; or 3) separation of the redundant systems by a passive fire barrier that could withstand a fire for at least one hour, together with fire detection and an automatic fire suppression system. If a licensee cannot comply with any of these options, it may also seek an exemption or waiver from the regulations from NRC if it can prove that its alternative solution would not adversely affect the safe shutdown of the reactor in the event of a fire.

According to SECY-03-0100, recent inspections of reactor licensees' fire protection programs found that, instead of complying with one of the three fire protection options provided for in current NRC regulations, licensees instead were relying on "operator manual actions," that were not approved by the NRC. The licensees had not sought exemptions or waivers from NRC fire protection regulations, although such exemptions or waivers have been granted in the past. SECY-03-0100 also stated that NRC staff had asked the NRC Office of General Counsel (OGC) whether the broad use of Operator Manual Actions in lieu of fire barriers could be considered to be in compliance with NRC's fire protection regulations. OGC said it could not, which we assume is the basis for the proposed rule change.

The paper went on to state that NRC staff had extensive interaction with the nuclear industry, including the Nuclear Energy Institute (NEI), about this matter, and NEI informed the NRC staff that the use of Operator Manual Actions was pervasive throughout the industry and that most licensees rely on them in instances where they

failed to obtain waivers or exemptions from the NRC. The staff paper concluded that because many licensees are out of compliance with NRC's regulations, and it would take a lot of time and money to enforce the regulations, NRC should change its regulations to ensure that what industry is already doing is deemed compliant. NRC staff therefore proposed a change to current regulations to allow a fourth option – to allow licensees to rely on operator manual actions in lieu of physically separating the redundant systems or using fire barriers.

Because of the serious health and economic consequences potentially associated with a fire at a nuclear reactor, and because of the ill-advised message that an alteration of Commission regulations in order to avoid enforcing them sends to the nuclear industry, we urge the Commission to reject the NRC staff's recommendation to weaken its fire protection regulations, and instead insist that the nuclear industry comply with these regulations. In addition, in order to better understand the facts and circumstances surrounding this manner, we also request your prompt assistance in answering the questions in the enclosed attachment.

We appreciate your prompt attention to these safety concerns and request that you direct your staff to contact Ms. Edith Holleman with the Committee on Energy and Commerce Democratic staff at 202-226-3400 or Dr. Michal Freedhoff or Mr. Jeffrey Duncan of Rep. Markey's staff at 202-225-2836 to arrange an appropriate timetable for submission of your response to this inquiry.

Sincerely,

JOHN D. DINGELL
Ranking Member
Committee on Energy and Commerce

EDWARD J. MARKEY
Member of Congress

cc: The Honorable Joe Barton, Chairman
Committee on Energy and Commerce

The Honorable Ralph Hall, Chairman
Subcommittee on Energy and Air Quality

The Honorable Rick Boucher, Ranking Member
Subcommittee on Energy and Air Quality

Attachment 1

Questions on Fire Safety

1) SECY-03-0100 states that "there is insufficient evidence that the generic use of these [Operator Manual] actions poses a safety issue."
   a) What would constitute evidence that the generic use of these actions poses a safety issue? Would another Browns Ferry fire or an incident on the scale of a Three Mile Island accident be needed to prompt action by the Commission?
   b) What is the Commission doing to obtain evidence of whether or not the generic use of such Operator Manual actions poses a safety issue?
   c) Doesn't relying on a reactor employee taking the time to manually shut down the reactor in the middle of a fire caused by a terrorist attack or catastrophic accident at a minimum pose a safety risk to that individual employee? Doesn't that also pose a safety issue for the Commission?

2) SECY-03-0100 states that the "proposed rulemaking would endorse the practice of using acceptable Operator Manual Actions as substitute for fire barriers. This is a significant policy change in that NRC has previously preferred the use of physical fire barriers over the use of Operator Manual Actions, given the choice."
   a) In the aftermath of the Browns Ferry fire and the subsequent promulgation of the agency's fire protection regulations, including10 CFR 50 Appendix R III.G.2, why did NRC require the use of physical fire barriers, automated fire detection and suppression systems and a minimal separation distance instead of Operator Manual Actions?
   b) Has NRC changed its analysis of fire and fire protection systems for post fire safe shutdown with regard to Appendix R III.G.2 since the promulgation of the fire protection regulation? If so, why? If not, then why isn't the Commission maintaining its preference for fire barriers, automated fire detection and suppression systems and a minimal separation distance?
   c) With the publication of the Federal Register notice dated November 26, 2003 (68 FR 66501-03) "Draft Criteria for Determining Feasibility of Manual Actions To Achieve Post-Fire Safe Shutdown," [Page 66501-66503], why did NRC proceed with qualifying the proposed manual operator actions as "feasible" despite repeated objections from members of its Advisory Committee on Reactor Safeguards (ACRS) Subcommittee on Fire Protection to the use of the term "feasible" for qualifying and validating these manual actions? [See Official Transcript of ACRS Subcommittee on Fire Protection, September 9, 2003]
   d) As indicated by the ACRS Subcommittee on Fire Protection concerns, does NRC acknowledge that there is a significant difference in achieving reasonable assurance for post-fire safe shutdown and the safety of both station personnel and the public to be gained through maintaining independently tested, qualified, and inspected fire barriers, fire detection and suppression systems and minimum separation requirements over "feasible" manual operator actions? If not, please explain why.

3) According to SECY-03-0100, the National Fire Protection Association standard (NFPA-805) states that fire risks may be increased where Operator Manual Actions are relied on to provide the primary means of recovery in lieu of fire protection features.
   a) In light of this standard, why is the Commission choosing to allow licensees to rely upon Operator Manual Actions in the event of a fire at a reactor rather than requiring its licensees to comply with fire protection regulations?
   b) SECY-03-0100 states that the NRC Office of Research "will conduct a literature search and evaluate the currently available information and industry practices to formulate the technical bases for manual actions." Please provide copies of all such information found, as well as any NRC analyses of it.

4) On March 3, 1993, then-NRC Chairman Selin stated in testimony before Congress (see "Fire Safety At Nuclear Power Stations," Hearing Before the Subcommittee On Oversight and Investigations of the Committee on Energy and Commerce, House of Representatives, 103rd Congress, March 3, 1993) that "the NRC's fundamental regulatory requirement, namely 1 hour of protection with detection and suppression or 3 hours without detection or suppression, has not changed." Yet the NRC, faced with widespread noncompliance with this requirement, is now proposing not to enforce the requirement more vigorously but instead to make compliance to the requirement for operable fire barriers, suppression and detection, and cable separation voluntary by adding the Operator Manual Actions option.
   a) Why hasn't the Commission enforced compliance with the regulations as described by then-Chairman Selin? Do you agree that the NRC's failure to do so sends a signal to the industry that it is acceptable to ignore any regulation it does not want to comply with? If not, why not?
   b) Please provide copies of all safety analyses that have been conducted by NRC staff or other entities that conclude that the use of Operator Manual Actions in lieu of the current fire protection requirements will not decrease safety. If no such analyses have been performed, then on what basis has the Commission justified the proposed rule change?

5) SECY-03-0100 states that "the safety benefit of forcing licensees to upgrade the physical fire barrier separation, where unapproved operator manual actions are currently utilized, is judged not to be significant when compared to the expected costs and resource diversions discussed in the disadvantages above."
   a) On what basis is it appropriate for the NRC to compare safety benefits in a nuclear environment with the costs of achieving them?
   b) Please provide your analysis regarding the "insignificance" of the safety risks associated with weakening the fire safety regulations.
   c) Has NRC conducted any independent analysis of the costs of compliance with the fire safety regulations, or is it relying on the representations of reactor

licensees? Please provide copies of any such analysis prepared by the NRC or any other entity.

6) Has the NRC undertaken any analysis of the cost of upgrading the fire barriers in comparison to the expected costs and resource diversions that would result in the event of another Browns Ferry-like fire? If not, why not?

7) In its November 26, 2003, Federal Register Notice, the NRC states "the results from NRC fire protection inspections to date indicate that there is insufficient evidence that the generic use of these manual actions poses a safety concern." However, a November 14, 2001, NRC presentation entitled "The Use of Manual Operator Actions for Achieving and Maintaining Fire Safe Shutdown," appears to find otherwise. It states that "Recent inspection have found that some licensee's have taken manual actions to the extreme interpretation such that no wrap is provided with operators solely relying on responding to mal-operations after they occur in III.G.2 fire areas. This condition is similar to the condition Browns Ferry was in prior to the 1975 fire [sic]."
   a) Does the NRC now believe that the pre-1975 condition of the Browns Ferry reactor did not pose a safety concern?
   b) If not, then why is NRC now proposing to allow licensees to utilize Operator Manual Actions that could recreate this condition instead of enforcing NRC's current fire protection regulations?
   c) Does the Commission believe that U.S. nuclear power plants are currently more fire-safe than they were in 1975? If so, what regulations or procedures are responsible for this?

8) It is our understanding that in some cases, reactor operators are designating untrained personnel such as members of the security guard forces as the individuals who would be responsible for manually shutting the reactor down in the event of a fire.
   a) Does the Commission support the use of personnel not trained in the operation of a nuclear reactor for this purpose? If so, why?
   b) Should the security guard forces be doing anything other than defending the reactor during a terrorist attack? If not, do you believe that relying on security guard forces to shut down the reactor manually would be ill-advised, since a fire at a reactor could be caused by a terrorist attack?
   c) Has the NRC or its staff undertaken any analysis of the security implications of having licensee guard forces undertake the additional mission of manually shutting down a reactor in the event of fire, including an analysis of scenarios involving a terrorist attack involving acts of arson, a terrorist attack in which an insider set fires to sow confusion, destroy or disable safety systems or otherwise facilitate the success of the attack? If not, why not? If so, what findings and recommendations were made?

Questions on Enforcing NRC Regulations

1) It is our understanding that in 1998, the NRC issued Orders to all reactor operators who had not completed their Thermo-lag 330-1 corrective action programs. A partial list of these reactors is included as Attachment 2. Please provide copies of all such Orders, as well as the status of each reactor operator's compliance with them (and the date on which the licensee came into compliance).

2) SECY-03-0100 states that many licensees are out of compliance with NRC regulations, but that "enforcement may not be the best remedy for this situation" and that enforcement "creates a prospect of significant resource expenditure without clear safety benefits."
   a) What would be the "resource expenditure" of a single, high-profile enforcement case against an operator who was issued an Order in 1998 but failed to take any steps to comply with the Order?
   b) What was the justification for these fire protection regulations if they provide no "clear safety benefit"?
   c) When determining to pursue enforcement actions against licensees who are found to be out of compliance with NRC regulations, what consideration does the Commission typically give to how widespread the violations are within the industry?
   d) What is the purpose of having regulations if the Commission is prepared to ignore them as soon as a critical mass of licensees refuses to comply with them?
   e) Has the NRC ever before rescinded or altered safety regulations to allow licensees who are out of compliance to avoid enforcement action? If so, list each such action, the date of that action, and the stated justification.
   f) Has the Commission ever before rescinded or altered safety regulations because it would cost too much to enforce them? If so, list each such action, the date of that action, and the stated justification.

3) SECY-03-0100 states that "licensees faced with enforcement actions might flood the NRC with exemption or deviation requests, which could divert NRC resources from more significant safety issues and may not result in any net safety improvement if the operator manual actions are determined to be acceptable."
   a) Has the nuclear industry ever before responded to NRC enforcement of its regulations by flooding the Commission with requests for waivers or exemptions from the regulations? If so, describe when, under what circumstances, and the Commission's response.
   b) In the past 10 years, how many requests for an exemption or deviation from NRC's fire protection regulations were made so that a licensee could instead use an Operator Manual Action? Of these requests, how many were granted?

4) SECY-03-0100 states that until the new regulations are adopted, numerous licensees will continue to be out of compliance with the fire protection regulations. Therefore, the staff proposed that it be allowed to refrain from any enforcement of the regulations.
   a) Is staff currently permitted to cease enforcement of these regulations? Under what authority?
   b) Please provide a list of all NRC enforcement actions ever taken against a licensee that utilized unapproved Operator Manual Actions in lieu of complying with NRC fire protection regulations. For each action, please list the date, licensee, reactor name, violation, penalty, what corrective actions were ordered, and whether the NRC verified whether the corrective actions were in fact taken.

5) According to SECY-03-0100, NEI stated in a January 11, 2002, letter to NRC staff that "NRC has implicitly accepted operator manual actions without exemption or deviation requests for some plants."
   a) Please provide a copy of this letter, along with copies of all other letters, emails, presentations, or other correspondence between NEI or its members to the NRC regarding this matter.
   b) In what way has the NRC implicitly accepted Operator Manual Actions without exemption or deviation requests for some plants? Did NRC ever tell NEI or a licensee that it could rely on Operator Manual Actions without an exemption or deviation request? Please provide copies of all such communications.

6) SECY-03-0100 states that NRC staff believe that if NRC chose to enforce current regulations and require the industry to repair or replace its fire barriers, that "the industry would appeal enforcement of the current requirements as a generic backfit" but that "the Committee for Review of Generic Requirements has reviewed this issue and does not consider enforcement of the current requirements a backfit." Does the Commission consider enforcement of the current requirements a backfit? Why or why not?

7) SECY-03-0100 also states that staff assumes that the NRC would approve most applications for waivers or exemptions. On what basis was this assumption made?

Questions on the Timing of the Proposed Change in Regulations

SECY-03-0100 states that "because of the possible public sensitivity of this issue, the staff does not believe that the proposed rulemaking should be accelerated. To enhance public confidence, the staff intends to process this rulemaking as a normal notice and comment rulemaking, allowing full opportunity for public comment." The full proposed process would have taken more than two years.

Instead of following those recommendations, the Commission chose to publish the proposed criteria in the Federal Register the day before Thanksgiving, and provide only 30 days for public comment. Moreover, the Commission proposed publication of both the interim and final rule simultaneously. The NRC ended up changing its plans when stakeholder groups complained that the expedited timeframe would not provide sufficient time for them to comment.

1) Why did the Commission choose to publish its Federal Register notice the day before Thanksgiving, provide only 30 days for the public to comment, and propose simultaneous publication of both the interim and final rule?

2) Did the Commission vote to shorten the public comment period? If so, how did each Commissioner vote? If not, how was this decision made?

3) What was the process through which the Commission reversed itself and lengthened the public comment process? Did the Commission vote to reverse itself, and if so, how did each Commissioner vote?

4) Please describe each step and the associated timeframe for a typical NRC rulemaking on subjects that involve changes to safety regulations.

5) What is the current timeframe for this regulatory change? Will the NRC follow the recommendations contained in SECY-03-0100 for each stage of the regulatory process, and if not, why not?

Attachment 2

THERMO-LAG 330-1 CONFIRMATORY ORDERS

Beginning in 1998 the United States Nuclear Regulatory Commission (NRC) issued Confirmatory Orders to at least 17 nuclear power station sites with a total of 25 units confirming each licensees' commitment to implement corrective actions programs for "inoperable" fire barriers required for the protection of safe shutdown systems identified in NRC Bulletin No. 92-01, "Failure of Thermo-Lag 330 Fire Barrier Systems To Maintain Cabling in Wide Cable Trays and Small Conduits Free From Fire Damage," issued June 24, 1992. The corrective action programs were to be completed by the licensees by dates specified in the Orders ranging from 6 to 24 months.

Press releases issued by NRC Office of Public Affairs with each Order identified that a total of about 20 reactor sites were to receive such Confirmatory Orders. Each press release identified that the Orders were being issued because of the agency's concern "that some licensees may not be making adequate progress toward resolving the plant-specific issues, and that some implementation schedules may either be too tenuous or too protracted."

Nuclear Information and Resource Service (NIRS) has identified through the NRC Public Document Room that at least the following sites and units were issued Thermo-Lag Corrective Action Orders:

- Three Mile Island 1
- Turkey Point 1& 2
- Peach Bottom 2 & 3
- Surry 1 & 2
- Oyster Creek
- Hatch 1
- Sequoyah 1 & 2
- St. Lucie 1
- North Anna 1 & 2
- Davis-Besse
- Limerick 1 & 2
- Hatch 2
- Susquehanna 1 & 2
- WNP-2 (Columbia)
- Comanche Peak 1
- Clinton
- South Texas 1 & 2