

RULEMAKING ISSUE

(Notation Vote)

March 28, 2005

SECY-05-0048

FOR: The Commissioners

FROM: Luis A. Reyes
Executive Director for Operations /RA/

SUBJECT: PETITION FOR RULEMAKING ON PROTECTION OF U.S. NUCLEAR POWER
PLANTS AGAINST RADIOLOGICAL SABOTAGE (PRM-50-80)

PURPOSE:

This paper asks the Commission to approve consideration of rulemaking to require licensees to evaluate the effects of plant changes on the safety/security interface. This paper also recommends the Commission deny the petitioners' request that licensees conduct analyses of potential aerial crashes and implement plant modifications to ensure safe shutdown capability.

SUMMARY:

The subject petition requested two rulemaking actions be undertaken. The staff evaluated the requests and, regarding the first request, recommends the Commission approve development of a technical basis for rulemaking requiring licensees to evaluate the effects of plant changes on the safety/security interface. The staff also recommends the Commission deny the petitioners second request that licensees conduct analyses of potential aerial crashes and implement modifications to ensure safe shutdown capability.

BACKGROUND:

On April 28, 2003, the Union of Concerned Scientists (UCS) and the San Luis Obispo Mothers for Peace (MFP) petitioned the Nuclear Regulatory Commission (NRC) for changes to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." The requested changes relate to radiological sabotage of nuclear power plants.

CONTACT: Joseph L. Birmingham, NRR/DRIP
301-415-2829

SECY NOTE: TO BE RELEASED TO THE PUBLIC 5 WORKING DAYS AFTER DISPATCH OF THE LETTER TO THE PETITIONER.

The petitioners proposed two rulemaking actions in PRM-50-80. First, the petitioners requested that 10 CFR 50.54(p), "Conditions of licenses," and 10 CFR 50.59, "Changes, tests, and experiments," be revised to require licensee evaluation of whether proposed changes, tests, and experiments would decrease protection against radiological sabotage and, if so, that such activities only be conducted with prior NRC approval. Second, the petitioners requested that 10 CFR Part 50 be revised to require licensees to evaluate their facilities' vulnerability to specified aerial hazards and make necessary changes to provide reasonable assurance that the ability of the facility to reach and maintain safe shutdown will not be compromised by such aerial hazards.

In accordance with 10 CFR 2.802(d), the petitioners further requested suspension of the Diablo Canyon Independent Spent Fuel Storage Installation (ISFSI) proceeding during consideration of PRM-50-80. That request was denied by Commission Memorandum and Order CLI-03-04, dated May 16, 2003.

The petition was published in the *Federal Register* for comment on June 16, 2003. Four comments were received arguing against the petition. No comments were received supporting the petition.

DISCUSSION:

First Proposed Action

The petitioners requested that 10 CFR 50.54(p) and 10 CFR 50.59 be revised to require licensee evaluations of whether proposed changes, tests, and experiments would decrease protection against radiological sabotage and, if so, that such activities only be conducted with prior NRC approval. The petitioners stated that presently, the two regulations have minimal overlap and that many changes, tests, and experiments have no effect on security. However, some proposed changes, tests, and experiments, including short-term or temporary ones, may affect plant security.

The petitioners stated that short-term degraded or off-normal conditions are often determined to be acceptable because of the low probability of an accident initiator during the short time they exist. However, the petitioners stated that sabotage is not random and the saboteur or saboteurs may choose to act during the degraded or off-normal condition. Therefore, the probability of sabotage occurring during degraded or off-normal conditions increases towards 100 percent. The petitioners asserted that it is reasonable to assume an insider acting alone or an insider aided by several outsiders will time the sabotage to coincide with a vulnerable plant configuration. Therefore, the petitioners requested that licensees be required to evaluate changes, tests, and experiments from both a safety and a security perspective. The petitioners suggested that the security review could flag a heightened vulnerability for a given change, but accept it (for temporary situations) based on compensatory measures (armed guards, etc.), and that the result of such a review would be that many licensee actions could proceed as planned, some could proceed with compensatory measures, a few would require NRC review, and a very small number might be denied.

Four letters of public comment were received on PRM-50-80. All opposed the actions requested in the petition. The commenters were the Aircraft Owners and Pilots Association (AOPA), Tennessee Valley Authority (TVA), Strategic Teaming and Resource Sharing (STARS), and the Nuclear Energy Institute (NEI). With regards to the first Proposed Action, two of the commenters stated that 10 CFR 50.59 and 50.54(p) have different purposes. Two of the commenters stated that industry guidance (NEI 96-07) on 10 CFR 50.59 evaluations requires all applicable regulations to be considered for changes, tests, and experiments and that a dual review of all changes is unnecessary. Two of the commenters stated that there are already requirements for prevention of radiological sabotage, including the recent orders and security requirements in both Part 73 and Part 50. One commenter stated that there is no direct correlation between security plan effectiveness and plant condition.

Second Proposed Action

The petitioners requested that 10 CFR Part 50 be amended to require licensees to evaluate the ability of their facilities to withstand specified aerial hazards and make necessary changes to provide reasonable assurance that the ability of the facility to reach and maintain safe shutdown would be maintained in the event of an accidental or intentional aerial crash. The petitioners asserted that none of the nuclear power plants were designed to withstand suicide attacks from the air and that the fire hazards analysis process used by the NRC following the Browns Ferry fire should be implemented for aerial hazards.

The petitioners claimed that the no-fly zones established in late 2001 by the Federal Aviation Administration (FAA) were a concession by the Federal government to the vulnerability of nuclear power plants to air assault. The petitioners also asserted that the control buildings at all nuclear power plants are outside of the robust concrete structures studied in NEI's analyses of nuclear power plant vulnerability to aircraft crashes. The petitioners asserted that 37 of the 81 Operational Safeguards Response Evaluations (OSREs) conducted before the date of the petition identified significant weaknesses. The petitioners contended that the control building is the Achilles heel in the OSRE target sets. The petitioners claimed that an aircraft hitting the control building may destroy the control elements for all four water supplies and much more. The petitioners argued that the NRC fire hazards analyses are not restricted to containment and that this is in recognition that core damage can result from fires outside containment. The petitioners stated that licensees are required to show in their fire hazards analyses that there is sufficient equipment outside the control room to achieve safe shutdown. The petitioner stated that the fire analyses have resulted in equipment and cable relocation. The petitioners further stated that the fire hazards analyses are "living documents" that future plant changes must be reviewed against.

The petitioners suggested that one way to ensure adequate protection from aerial threats is to replicate the fire hazards analysis process and that NRC should define the size and nature of the aerial threat a plant must protect against as part of the design basis threat (DBT). The petitioners suggested the aerial threat should include, at a minimum, general aviation aircraft because post-9/11 airport security measures usually overlook general aviation. The petitioners suggested the aerial threat might include explosives delivered via mortars and other means (e.g., rocket-propelled grenades). The petitioners further stated that, if the aerial hazards

evaluation identifies that all targets within target sets are likely to be disabled, the licensee should have three options:

1. Add or install other equipment to the target set that is outside of the impact zone to perform the target set function.
2. Protect in place at least one of the targets (shield wall, etc.).
3. Relocate or reroute affected portions of a system to outside of the impact zone.

The petitioners also suggested the aerial hazards analysis should provide a means to ensure future changes do not compromise protection and that whether arriving on foot or by air, adversaries should not be able to disable an entire target set. The petitioners asserted that in 13 of 57 plant OSREs, the adversary team was able to destroy every target in the target set without entering containment (27 of the OSREs simulated destruction of at least 1 target set). The petitioners further argued that if an aircraft had hit a nuclear power plant on September 11, 2001, then the actions proposed in the petition would have been taken as necessary to prevent recurrence. The petitioners suggested that these actions should be implemented to prevent occurrence in the first place.

With respect to the second requested action, one commenter opposed inclusion of general aviation aircraft in the DBT, and described actions and flight restrictions taken by Federal and industry airport and aircraft security organizations. The same commenter cited a report by Robert M. Jefferson that concluded that general aviation aircraft are not a significant threat to nuclear power plants. Another commenter mentioned industry and government studies of the effects of a large airborne object. The commenter stated the studies concluded there would be no massive releases from such an event. The commenter also said that nuclear power plants already have diverse, divided trains and shutdown capability. Another commenter said that NRC would promulgate any needed regulatory changes, based on ongoing vulnerability studies at a Department of Energy national laboratory. Another commenter argued the Federal Government is responsible for protection of nuclear power plants from aircraft attacks. The same commenter claimed that extensive aircraft impact analyses are not justified and cited an industry study of the risk from an armed terrorist ground attack. The study concluded that the consequences would be noncatastrophic.

ANALYSIS OF REQUESTED ACTIONS:

The staff evaluated the advantages and disadvantages of the two proposed actions with respect to the NRC Strategic Performance Goals.

First Proposed Action

1. Ensure protection of public health and safety and the environment: The staff acknowledges that the requested rulemaking could help protect public health and safety and the environment. Nuclear power plant licensees are currently required to address the continued safety of the plant with regard to changes, tests, or experiments (10 CFR 50.59) and also to “. . . establish, maintain, and follow an NRC-approved safeguards contingency plan for responding to threats, thefts, and radiological sabotage . . .” (10 CFR 73.55(h)(1)). Further, licensees must “. . . establish and maintain an onsite physical protection system and security organization which will have as its objective to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.” (10 CFR 73.55(a)), and “. . . may make no change which would decrease the effectiveness of a security plan . . .” (10 CFR 50.54(p)(1)). However, the regulations do not specifically require evaluation of the effect of plant changes on security or the effect of security plan changes on plant safety. Further, the regulations do not require communication about the implementation and timing of changes amongst operations, maintenance, and security to promote awareness of the effects of changing conditions for appropriate assessment and response.

In addition, the staff is aware of enough occurrences of adverse safety/security interactions at nuclear power plants over the years to justify consideration of a rule change. Many, but not all, of these occurrences were during refueling outages. Examples of operations adversely impacting on security include: inadvertent security barrier breaches while performing maintenance activities (e.g., cutting of pipes that provide uncontrolled access to vital areas, removing ventilation fans or other equipment from vital area boundary walls without taking compensatory measures to prevent unauthorized entry into vital areas, etc.); blockage of bullet resisting enclosure (or other defensive firing position) fields of fire; erection of scaffolding and other equipment without due consideration of its impact on security response time-lines or response pathways; and staging of temporary equipment within security isolation zones. An example of security adversely impacting operations could be inadequate staffing of security force personnel on backshifts, weekends, and holidays, to support operations during emergencies (e.g., opening and securing vital area access doors to allow operations personnel timely access to safety-related equipment).

2. Ensure the secure use and management of radioactive materials: The staff believes that the requested rulemaking could help ensure the secure use and management of radioactive materials. As discussed above, existing regulations require the evaluation of changes to the facility and to the security plan. However, the regulations do not specifically require that these changes be evaluated for their effect on the safety/security interface. Therefore, revising the regulations to specifically require these changes to be evaluated for their potential effect on the safety/security interface could help further the secure use and management of radioactive materials.
3. Ensure openness in our regulatory process: The requested rulemaking would further openness in the regulatory process by providing an opportunity for public comment on

the proposed revision. Public comment and the rulemaking process could help determine the need for a revision and the scope of any revision.

4. Ensure that NRC activities are effective, efficient, realistic, and timely: The proposed revisions would likely make existing regulations more effective and address realistic field implementation issues but would necessarily result in some increase in licensee and NRC burden.

In summary, the staff agrees with the petitioners that rulemaking may be appropriate for the first requested action but suggests that further consideration is needed to determine the sections of Parts 50 and/or 73 that should be revised. The staff also plans to issue a generic communication to heighten licensee awareness to the potential for changes to the facility or to the security plan to adversely affect plant safety or security. The staff notes that communications between the NRC and licensees should comply with guidance in SECY-04-191 on sensitive unclassified information to preclude aiding a potential adversary.

Approach for rulemaking for the first requested action:

If the Commission approves the staff's recommendation, the staff will begin development of the technical basis for rulemaking and of a specific approach for revision of the regulations. An interoffice workgroup has identified options for rulemaking for power reactors and provided them to the interoffice Safety Security Interface Advisory Panel (SSIAP) which will, if the Commission approves the staff's recommendation, advise the staff on an approach for technical basis development.

The Office of Nuclear Materials Safety and Safeguards (NMSS) will be informed of the actions and decisions of the SSIAP. After the technical basis has been developed and a preferred approach for rulemaking that would address safety/security interface issues for power reactors has been identified, NMSS will assess the need for rulemaking that would encompass safety/security issues for their licensees.

Second Proposed Action

1. Ensure protection of public health and safety and the environment: The staff believes that the requested action would not significantly contribute to protecting public health and safety and the environment because vulnerability assessments to date indicate that the likelihood of such events damaging the reactor core and releasing radioactivity that could affect public health and safety is low. In addition, the staff believes that the best way to protect against an attack is by effective implementation of Transportation Security Administration security measures at the nation's airports. Additional site-specific studies of operating nuclear power plants are underway or being planned to determine the need, if any, for additional mitigating capability on a site-specific basis. Furthermore, the staff will continue to review intelligence and threat reporting to recommend any appropriate modifications to the DBT. The specifics of the DBT for radiological sabotage are considered safeguards information and are not disclosed to the general public.

2. Ensure the secure use and management of radioactive materials: The staff believes that the requested action would not significantly contribute to ensuring the secure use and management of radioactive materials because evaluations that support the adequacy of the DBT already consider attacks by various modes of transport and their likelihood of occurrence.
3. Ensure openness in our regulatory process: The proposed revisions would not further increase openness in our regulatory process because the analyses and/or plant changes that would be required if the requested action was implemented would need to be protected as Safeguards Information and would not be disclosed to the general public.
4. Ensure that NRC actions are effective, efficient, realistic, and timely: The proposed revisions would not make NRC activities and decisions more effective, efficient, realistic, and timely because NRC already required nuclear power plant licensees to implement specific security enhancements and/or measures to mitigate the potential consequences of a successful attack on a nuclear power plant in a manner that incorporates the full scope of the Interim Compensatory Measures required by Order dated February 25, 2002, and the DBT as supplemented by Order on April 29, 2003. Additional site-specific studies of nuclear power plants are underway or are being planned to determine the need, if any, for additional mitigating capability on a site-specific basis. Furthermore, the staff will continue to review intelligence and threat reporting to recommend any appropriate modifications to the DBT.

Because the requested action would not significantly contribute to protecting public health and safety and the environment and because the best way to protect against an aerial assault is by effective implementation of Transportation Security Administration security measures at the nation's airports, the staff does not agree with the petitioners that rulemaking is necessary for the second requested action of PRM-50-80.

RESOURCES:

The staff expects that 2.3 FTE will be needed to develop the technical basis for this rule, approximately 1 FTE from the Office of Nuclear Security and Incident Response (NSIR), 1 FTE from the Office Of Nuclear Reactor Regulation (NRR), and 0.3 FTE from NMSS. If the Commission approves the staff's recommendation, the staff will begin technical basis development in FY 06. The staff evaluated this proposed rulemaking against all other potential agency rulemakings and determined that it ranked high. Therefore, if the Commission approves the staff's recommendation, the staff intends to reallocate resources from lower priority activities in the existing budget.

The staff is also planning to include resources in the proposed FY 07 budget for this rulemaking based on the assumption that the technical basis will be available by mid FY 07. The staff expects that 2.5 FTE will be needed to conduct the rulemaking (approximately 0.7 FTE from NSIR, 1.5 FTE from NRR, and 0.3 from the Office of the General Counsel). The staff estimates that \$40K from NRR will be needed to develop the regulatory analysis and that the rulemaking will take 24 months to complete.

RECOMMENDATION:

That the Commission:

1. Approve the staff developing the technical basis for a rulemaking to require licensees to evaluate the effects of plant changes on the safety/security interface.
2. Deny the second requested action of PRM-50-80 regarding licensee analyses of aerial crashes.
3. Approve publication of a *Federal Register* Notice (Attachment 1) describing the Commission's intention.
4. Note that:
 - a. A letter is attached for the Secretary's signature (Attachment 2) informing the petitioners of the Commission's decision to partially deny the petition.
 - b. The appropriate Congressional committees will be informed.

COORDINATION:

The Office of the General Counsel has no legal objection to denying the petition in part.

/RA/

Luis A. Reyes
Executive Director
for Operations

Attachments: 1. *Federal Register* Notice
2. Letter to Petitioners

FEDERAL REGISTER NOTICE

NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

[Docket No. PRM-50-80]

Union of Concerned Scientists and San Luis Obispo Mothers for Peace;
Partial Denial of Petition for Rulemaking

AGENCY: Nuclear Regulatory Commission.

ACTION: Petition for rulemaking: Partial denial.

SUMMARY: The Nuclear Regulatory Commission (NRC) is denying in part, a petition for rulemaking (PRM-50-80) submitted by the Union of Concerned Scientists (UCS) and San Luis Obispo Mothers for Peace (MFP). The petitioners requested two rulemaking actions in PRM-50-80. First, the petitioners requested the regulations establishing conditions of licenses and requirements for evaluating proposed changes, tests, and experiments for nuclear power plants be revised to require licensee evaluation of whether the proposed actions cause protection against radiological sabotage to be decreased and, if so, that the changes, tests, and experiments only be conducted with prior NRC approval. The NRC is contemplating a rulemaking action that would address the petitioners' request and, if issued as a final rule, essentially grant this portion of the petition. Second, the petitioners requested that regulations governing the licensing and operation of nuclear power plants be amended to require licensees to evaluate facilities against specified aerial hazards and make necessary changes to provide reasonable assurance that the ability of the facility to reach and maintain safe shutdown will not be compromised by such aerial hazards. The NRC is denying the petition with respect to the second issue.

The petitioners further requested the Commission to suspend the Diablo Canyon Independent Spent Fuel Storage Installation (ISFSI) proceeding during the NRC's consideration of PRM-50-80. That request was denied by Commission Memorandum and Order CLI-03-04, dated May 16, 2003.

ADDRESSES: Copies of the petition, the public comments received, and the NRC's letter of partial denial to the petitioner may be examined, and/or copied for a fee, at the NRC's Public Document Room, located at One White Flint North, 11555 Rockville Pike, Public File Area O1F21, Rockville, Maryland. These documents are also available electronically at the NRC's Public Electronic Reading Room on the Internet at <http://www.nrc.gov/reading-rm/adams.html>. From this site, the public can gain entry into the Agencywide Document Access and Management System (ADAMS), which provides text and image files of NRC's public documents. For further information, contact the PDR reference staff at (800) 397-4209 or (301) 415-4737 or by email to pdr@nrc.gov.

FOR FURTHER INFORMATION CONTACT: Joseph L. Birmingham, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-2829, e-mail jlb4@nrc.gov.

SUPPLEMENTARY INFORMATION:

The Petition

The petition was sent to the NRC on April 28, 2003, and the notice of receipt of the petition and request for public comment was published in the *Federal Register* (FR) on June 16, 2003 (68 FR 35585). The public comment period ended on September 2, 2003. Four comments were received opposing the petition. No comments were received supporting the petition.

First Proposed Action

The petitioners requested that 10 CFR 50.54(p), "Conditions of licenses," and 10 CFR 50.59, "Changes, tests, and experiments," be revised to require licensee evaluations of whether proposed changes, tests, and experiments cause protection against radiological sabotage to be decreased and, if so, that such activities only be conducted with prior NRC approval. The petitioners stated that the two regulations have minimal overlap and that many changes, tests, and experiments have no effect on security. However, some proposed changes, tests, and experiments, including those that are short-term or temporary, may affect plant security.

The petitioners stated that short-term degraded or off-normal conditions are often determined to be acceptable because of the low probability of an accident initiator during a short period of time. However, the petitioners stated that sabotage is not random and the saboteur or saboteurs may choose to act during the degraded or off-normal conditions. Therefore, the probability of sabotage occurring during degraded or off-normal conditions increases towards 100 percent. The petitioners asserted that it is reasonable to assume an insider acting alone or an insider aided by several outsiders will time the sabotage to coincide with a vulnerable plant configuration. Therefore, the petitioners requested that licensees be

required to evaluate changes, tests, and experiments from both a safety and a security perspective. The petitioners suggested that the security review could flag a heightened vulnerability for a given change, but accept it (for temporary situations) based on compensatory measures (armed guards, etc.). The petitioners suggested the result would probably be that many licensee actions could proceed as planned, some could proceed with compensatory measures, a few would require NRC review, and a very small number might be denied.

Second Proposed Action

The petitioners requested that 10 CFR Part 50 be amended to require that licensees evaluate each facility against specified aerial hazards and make necessary changes to provide reasonable assurance that the ability of the facility to reach and maintain safe shutdown will not be compromised by an accidental or intentional aerial assault. The petitioners asserted that none of the nuclear power plants were designed to withstand suicide attacks from the air and that the fire hazards analysis process used by the NRC following the March 22, 1975, fire at the Browns Ferry reactor in Decatur, Alabama, should be implemented for aerial hazards.

The petitioners claimed that the Federal Aviation Administration (FAA) no-fly zones established in late 2001 were a concession by the Federal government to the vulnerability of nuclear power plants to air assaults. The petitioners also asserted that the control buildings at nuclear power plants are outside of the robust concrete structures studied by the Nuclear Energy Institute (NEI) in their analyses of nuclear power plant vulnerability to aircraft crashes. The petitioners further asserted that 37 of 81 Operational Safeguards Response Evaluations (OSRE) conducted to the date of the petition identified significant weakness(es), and contended that the control building is the Achilles' heel in the OSRE target sets. The petitioners claimed

that an aircraft hitting the control building may destroy the control elements for all four water supplies and much more. The petitioners asserted that the scope of the NRC-required fire hazards analyses are not restricted to containment and that this is a recognition that core damage can result from fires outside containment. The petitioners stated that licensees are required to show in their fire hazards analyses that there is enough equipment outside the control room for safe shutdown, and that these analyses have resulted in equipment and cable relocation. The petitioners further stated that the fire hazards analyses are “living documents” that future plant changes must be reviewed against.

The petitioners suggested that the way to ensure adequate protection from aerial threats is to replicate the fire hazards analysis process and that NRC should define the size and nature of the aerial threat that a plant must protect against as part of the design basis threat (DBT). The petitioners suggested the aerial threat should include, at a minimum, general aviation aircraft, because post-9/11 airport security measures generally overlook general aviation. The petitioners suggested the aerial threat include explosives delivered via mortars and other means (e.g. rocket propelled grenades). The petitioners further stated that, if the aerial hazards evaluation determines that all targets within a target set are likely to be disabled, the licensee should have three options:

- (1) Add or install other equipment to the target set that is outside of the impact zone to perform the target set's function.
- (2) Protect in place at least one of the targets (shield wall, etc.).
- (3) Relocate or reroute affected portions of a system to outside of the impact zone.

The petitioners also suggested the aerial hazards analysis should provide a means to ensure that future changes do not compromise protection and that whether arriving on foot or by air adversaries would not be able to neutralize an entire target set. The petitioners asserted that in 13 of 57 plant OSREs the adversary team did not enter containment in order to destroy every target in the target set, (27 of the OSREs simulated destruction of at least 1 target set). The petitioners further argued that if an aircraft had hit a nuclear power plant on September 11, 2001, then the approach set forth in the petition would have been undertaken as necessary to prevent recurrence. The petitioners suggested that these measures should be implemented to prevent occurrence in the first place.

Public Comment on the Petition

The NRC received four letters of public comment on PRM-50-80. All of the comments opposed the actions requested in the petition. Each comment is discussed below.

The Aircraft Owners and Pilots Association (AOPA) stated that they oppose inclusion of general aviation aircraft in the DBT. AOPA described the actions taken to date by the Federal government and industry in terms of airport and aircraft security and current flight restrictions near nuclear power plants. AOPA also cited a report by Robert M. Jefferson, who concluded that general aviation aircraft are not a significant threat to nuclear power plants. The report is on the AOPA's website at http://www.aopa.org/whatsnew/newsitems/2002/02-2-159_report.pdf.

Tennessee Valley Authority (TVA), a nuclear power plant licensee, stated that the proposed change to 10 CFR 50.59 is inconsistent with the purpose of the regulation and that

the DBT order already required revised physical security plans for the new DBT by April 29, 2004. The same commenter further stated that Sandia National Laboratories, in conjunction with NRC, has been performing vulnerability studies of aircraft impacts and that the NRC will promulgate changes to the regulations if they are needed.

A consortium of nuclear power plants, Strategic Teaming and Resource Sharing (STARS), stated that industry guidance in NEI 96-07, "Guidelines for 10 CFR 50.59 Implementation," for performing 10 CFR 50.59 evaluations specifies that all applicable regulations be considered in those evaluations and that a required dual security review for all changes is unnecessary. STARS stated further that requirements to prevent radiological sabotage already exist in 10 CFR 50.34 (c) and (d), 50.54(p), Part 73 and recent security orders. STARS further asserted that nuclear power plants have diverse, divided trains and shutdown capability. STARS asserted that NRC and industry studies of the effects of a large airborne object showed no massive releases of radiation. STARS concluded that an aircraft impact would pose no greater or different vulnerability than has already been analyzed.

NEI, an industry group representing all U.S. commercial nuclear power plants, plant designers, architect/engineering firms, and fuel cycle facilities, opposed the petition. NEI stated that industry guidance in NEI 96-07, "Guidelines for 10 CFR 50.59 Implementation," already requires all applicable regulations to be considered in those evaluations and a required dual security review for all changes is unnecessary. NEI also argued that 10 CFR 50.59 and 50.54(p) are necessarily different in purpose. NEI further asserted that there is no direct correlation between security plan effectiveness and the plant condition. NEI also argued that the Federal Government, not the licensee, is responsible for protection of nuclear power plants

from aircraft attacks. NEI further claimed that extensive aircraft impact analyses are not justified and cited an industry study of the risk from an armed terrorist ground attack that concluded there would be non-catastrophic consequences.

Reasons for NRC's Response

The NRC evaluated the advantages and disadvantages of the two proposed actions requested by the petition against the NRC Strategic Performance Goals.

First Proposed Action

1. Ensure protection of public health and safety and the environment: The NRC acknowledges that the requested rulemaking could help protect public health and safety and the environment. The NRC notes that nuclear power plant licensees are currently required to address the continued safety of the plant with regard to any change, test, or experiment (10 CFR 50.59), and also to “. . . establish, maintain, and follow an NRC-approved safeguards contingency plan for responding to threats, thefts, and radiological sabotage . . .” (10 CFR 73.55(h)(1)). Further, they are required to “. . . establish and maintain an onsite physical protection system and security organization that will have as its objective to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.” (10 CFR 73.55(a)), and “. . . may make no change which would decrease the effectiveness of a security plan . . .” (10 CFR 50.54(p)(1)). However, the regulations do not specifically require evaluation of the effect of plant changes on security or the effect of security plan changes on plant

safety. Further, the regulations do not require communication about the implementation and timing of changes amongst operations, maintenance, and security to promote awareness of the effects of changing conditions for appropriate assessment and response.

In addition, the NRC is aware of enough occurrences of adverse safety/security interactions at nuclear power plants over the years to justify consideration of a rule change. Many, but not all, of these occurrences were during refueling outages.

Examples of operations adversely impacting on security include: inadvertent security barrier breaches while performing maintenance activities (e.g., cutting of pipes that provide uncontrolled access to vital areas, removing ventilation fans or other equipment from vital area boundary walls without taking compensatory measures to prevent unauthorized entry into vital areas, etc.); blockage of bullet resisting enclosure (or other defensive firing position) fields of fire; erection of scaffolding and other equipment without due consideration of its impact on security response time-lines or response pathways; and staging of temporary equipment within security isolation zones. An example of security adversely impacting operations could be inadequate staffing of security force personnel on backshifts, weekends, and holidays, to support operations during emergencies (e.g., opening and securing vital area access doors to allow operations personnel timely access to safety-related equipment).

2. Ensure the secure use and management of radioactive materials: The NRC believes that the requested rulemaking could help ensure the secure use and management of radioactive materials. As discussed, existing regulations require the evaluation of changes to the facility and to the security plan. However, the regulations do not

specifically require that these changes be evaluated for their effect on the safety/security interface. Therefore, revising the regulations to specifically require these changes to be evaluated for their potential effect on the safety/security interface could help ensure the secure use and management of radioactive materials.

3. Ensure openness in our regulatory process: The requested rulemaking would further openness in the regulatory process by providing an opportunity for public comment on the merits of the proposed revision. Public comment and the rulemaking process could help determine the need for the revision and the scope of any revision.

4. Ensure that NRC activities are effective, efficient, realistic, and timely: The proposed revisions would likely make existing regulations more effective and address realistic field implementation issues but would necessarily result in some increase in licensee and NRC burden.

The NRC evaluation determined that regulations currently exist related to safety and security but the regulations do not specifically require an evaluation of the effect of plant changes on security or the effect of security plan changes on plant safety. Therefore, the NRC will consider rulemaking to address this part of the petition. The NRC believes that rulemaking is appropriate but also believes that further consideration is needed to determine the sections of Parts 50 and/or 73 that should be revised. Additionally, the staff notes that communications between the NRC and licensees should comply with guidance in SECY-04-191 for sensitive unclassified information to preclude aiding a potential adversary.

Second Proposed Action

1. Ensure protection of public health and safety and the environment: The staff believes that the requested action would not significantly contribute to protecting public health and safety and the environment because vulnerability assessments to date indicate that the likelihood of such events damaging the reactor core and releasing radioactivity that could affect public health and safety is low. In addition, the staff believes that the best way to protect against an aerial is by effective implementation of Transportation Security Administration security measures at the nation's airports. Additional site-specific studies of operating nuclear power plants are underway or being planned to determine the need, if any, for additional mitigating capability on a site-specific basis. Furthermore, the staff will continue to review intelligence and threat reporting to recommend any appropriate modifications to the DBT. The specifics of the DBT for radiological sabotage are considered safeguards information and are not disclosed to the general public.

2. Ensure the secure use and management of radioactive materials: The staff believes that the requested action would not significantly contribute to ensuring the secure use and management of radioactive materials because evaluations that support the adequacy of the DBT already consider attacks by various modes of transport and their likelihood of occurrence.

3. Ensure openness in our regulatory process: The proposed revisions would not further increase openness in our regulatory process because the analyses and/or plant changes that would be required if the requested action was implemented would need to

be protected as Safeguards Information and would not be disclosed to the general public.

4. Ensure that NRC actions are effective, efficient, realistic, and timely: The proposed revisions would not make NRC activities and decisions more effective, efficient, realistic, and timely because NRC already required nuclear power plant licensees to implement specific security enhancements and/or measures to mitigate the potential consequences of a successful attack on a nuclear power plant in a manner that incorporates the full scope of the Interim Compensatory Measures required by Order dated February 25, 2002 and the DBT as supplemented by Order on April 29, 2003. Additional site-specific studies of nuclear power plants are underway or are being planned to determine the need, if any, for additional mitigating capability on a site-specific basis. Furthermore, the staff will continue to review intelligence and threat reporting to recommend any appropriate modifications to the DBT.

For these reasons, the Commission denies the second requested action of PRM-50-80.

Dated at Rockville, Maryland, this _____ day of _____, 2005.

For the Nuclear Regulatory Commission

Annette L. Vietti-Cook
Secretary of the Commission

Mr. David Lochbaum
Union of Concerned Scientists
1707 H Street NW
Suite 600
Washington, D.C. 20006-3919

SUBJECT: PETITION FOR RULEMAKING PRM-50-80: BETTER PROTECTION OF U.S.
NUCLEAR POWER PLANTS AGAINST RADIOLOGICAL SABOTAGE

Dear Mr. Lochbaum:

I am responding to your letter dated April 28, 2003, in which you submitted a petition for rulemaking (PRM) requesting that the U.S. Nuclear Regulatory Commission (NRC) amend its regulations to better protect nuclear power plants against radiological sabotage. The petition proposed two rulemaking actions. The first proposed action requested that 10 CFR 50.54(p), "Conditions of licenses," and 10 CFR 50.59, "Changes, tests, and experiments," be revised to require licensees to evaluate whether proposed changes, tests, and experiments cause protection against radiological sabotage to be decreased and, if so, that such actions only be conducted with prior NRC approval. The second proposed action requested that 10 CFR Part 50 be amended to require licensees to evaluate their facilities against specified aerial hazards and make necessary changes to provide reasonable assurance that the ability of the facility to reach and maintain safe shutdown will not be compromised by an accidental or intentional aerial assault.

You also requested, in accordance with 10 CFR 2.802(d), that the Commission suspend the Diablo Canyon Independent Spent Fuel Storage Installation proceeding during the NRC's consideration of PRM-50-80. As you are aware, that request was denied by Commission Memorandum and Order CLI-03-04, dated May 16, 2003.

Your petition was published in the *Federal Register* for comment on June 16, 2003. Four comments were received opposing the petition. No comments were received supporting the petition.

We received the following comments on the first proposed action: (1) that 10 CFR 50.59 and 50.54(p) are necessarily different; (2) industry guidance on performing 10 CFR 50.59 evaluations (NEI 96-07, "Guidelines for 10 CFR 50.59 Evaluations") already requires all applicable regulations to be considered for changes, tests, and experiments, and that a required dual review of all changes is unnecessary; (3) there are already requirements for sabotage, including the recent orders and security requirements in both Part 73 and Part 50; and (4) there is no direct correlation between security plan effectiveness and plant condition.

We received the following comments on the second proposed action: (1) one commenter opposed inclusion of general aviation aircraft in the design basis threat (DBT) given the current flight restrictions near nuclear power plants and the actions taken by Federal and industry

airport and aircraft security organizations; (2) general aviation aircraft are not a significant threat to nuclear power plants; (3) industry and government have already studied the effect of a large airborne object and concluded there would be no massive releases from such an event; (4) nuclear power plants already have diverse, divided trains and shutdown capability; (5) NRC would promulgate any regulations needed, based on ongoing vulnerability studies at Sandia National Laboratory; (6) the Federal Government, not the licensee, is responsible for protection of nuclear power plants from aircraft attacks; and (7) extensive aircraft impact analyses are not justified, given an industry study of the risk from an armed terrorist ground attack that concluded there would be noncatastrophic consequences.

We have decided to consider rulemaking in response to the first proposed action that would, if adopted as a final rule, essentially grant the requested action. The NRC's interoffice Safety/Security Interface Advisory Panel will advise the staff on the most effective and efficient method to integrate this rulemaking with other ongoing safety/security actions. In reviewing the first proposed action and the relevant regulations, we determined that the requested rulemaking could help maintain safety and security. In making our determination to consider rulemaking for the first proposed action, we noted that nuclear power plant licensees are currently required to address the continued safety of the plant with regards to any change, test, or experiment (10 CFR 50.59), and also to ". . . establish, maintain, and follow an NRC-approved safeguards contingency plan for responding to threats, thefts, and radiological sabotage . . ." (10 CFR 73.55(h)(1)). Further, licensees are required to ". . . establish and maintain an onsite physical protection system and security organization that will have as its objective to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety . . ." (10 CFR 73.55(a)), and ". . . may make no change which would decrease the effectiveness of a security plan . . ." (10 CFR 50.54(p)(1)). However, the issue described in the first proposed action is not specified in a single comprehensive regulation.

We evaluated the second proposed action and determined that 10 CFR Part 50 should not be amended to require licensees to evaluate their facilities against specified aerial threats or hazards. However, the NRC staff plans to amend 10 CFR Part 73 to require nuclear power plant licensees to implement specific security enhancements and/or measures to mitigate the potential consequences of a successful attack on a nuclear power plant in a manner that incorporates the full scope of the revised DBT issued by Order on April 29, 2003.

This determination was based, in part, on the results of assessments conducted by the NRC after the September 11, 2001, attacks in New York and on the Pentagon. These assessments considered the potential for and consequences of terrorists targeting a nuclear power plant for aircraft attack, the physical effects of such a strike, and compounding factors such as meteorology that would affect the impact of potential radioactive releases. As a result of these preliminary assessments, the NRC required that nuclear power plant licensees implement interim enhancements to mitigate potential consequences in the unlikely event of a successful attack on a nuclear power plant.

As part of a comprehensive review of security for NRC-licensed facilities, the NRC conducted detailed site-specific engineering studies of a limited number of nuclear power plants to assess potential vulnerabilities of deliberate attacks involving large commercial aircraft. In conducting these studies, the NRC drew on national experts from several Department of Energy laboratories using state-of-the-art structural and fire analyses. For the facilities analyzed, the

Mr. D. Lochbaum

-3-

vulnerability studies confirm that the likelihood of damaging the reactor core and releasing radioactivity that could affect public health and safety is low. Even in the unlikely event of a radiological release due to terrorist use of a large aircraft, there would be time to implement mitigating actions and offsite emergency plans such that the NRC's emergency planning basis remains valid.

Additional site-specific studies of operating nuclear power plants are underway or being planned to determine the need, if any, for additional mitigating capability on a site-specific basis. Furthermore, the NRC staff will continue to review intelligence and threat reporting to recommend any appropriate modifications to the DBT.

Further details are discussed in the enclosed notice, Petition for Rulemaking, Partial denial, that will be published in the *Federal Register*.

Sincerely,

Annette L. Vietti-Cook
Secretary of the Commission

cc: San Luis Obispo Mothers for Peace
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Enclosure:
Federal Register Notice: Petition for Rulemaking, Partial denial.