

UNITED STATES NUCLEAR REGULATORY COMMISSION  
DOCKET NOS. 50-282, 50-306 AND 72-10  
NORTHERN STATES POWER COMPANY  
PRAIRIE ISLAND NUCLEAR PLANT AND  
PRAIRIE ISLAND INDEPENDENT SPENT FUEL STORAGE INSTALLATION  
ISSUANCE OF DIRECTOR'S DECISION UNDER 10 CFR 2.206

Notice is hereby given that the Director, Office of Nuclear Reactor Regulation, has issued a Director's Decision concerning a Petition dated August 26, 1997, filed by the Prairie Island Coalition (Petitioner) under Section 2.206 of Title 10 of the Code of Federal Regulations (10 CFR 2.206). The Petitioner requests that the NRC (1) suspend Northern States Power Company's (the licensee's) Materials License No. SIM-2506 for cause under Section 50.100 of Title 10 of the Code of Federal Regulations (10 CFR 50.100) until all material issues regarding the maintenance, unloading, and decommissioning processes and procedures, as described in the Petition and in the Petition filed on May 28, 1997, by the Prairie Island Indian Community, have been adequately addressed and resolved, and until the maintenance and unloading processes and procedures in question are safely demonstrated under the scrutiny of independent third-party review of the TN-40 cask seal maintenance and unloading procedure; (2) determine that the licensee violated 10 CFR 72.122(f) by using a cask design that requires periodic seal maintenance and emergency seal replacement that must be performed in the plant storage pool. The Petitioner asserts that these casks cannot be placed back into the pool to perform these functions due to unresolved problems with fuel degradation during storage,

flash steam, thermal shock, and the resulting potential for radiation dispersion; (3) determine that the licensee violated 10 CFR 72.122(h) by using a cask that must be placed into the pool for necessary maintenance and/or unloading procedures. The Petitioner asserts that such placement of the cask into the pool will prematurely degrade the fuel and pose operational safety problems with respect to its ultimate and necessary removal from dry cask storage; (4) determine that the licensee violated 10 CFR 72.122(i) by loading casks and storing them before the licensee had developed and implemented procedures adequate to safely unload and decommission the TN-40 casks; (5) determine that the licensee violated 10 CFR 72.130 by using the TN-40 cask and failing to make provisions capable of accomplishing the removal of radioactive waste and contaminated materials at the time the independent spent fuel storage installation (ISFSI) is permanently decommissioned; (6) determine that the licensee violated 10 CFR 72.11 by failing to provide and include complete and accurate material information regarding maintenance and unloading of TN-40 casks in the application for the Prairie Island ISFSI and in subsequent submittals regarding cask maintenance and unloading issues; (7) determine that the licensee violated 10 CFR 72.12 by deliberately and knowingly submitting incomplete and inaccurate material information regarding maintenance and unloading of TN-40 casks in the application for the Prairie Island ISFSI and in subsequent submittals regarding cask maintenance and unloading issues; (8) require that the licensee pay a substantial penalty for each cask loaded in violation of NRC regulations; (9) administer such other sanctions for the alleged violations of NRC regulations as the NRC deems necessary and appropriate; (10) provide Petitioner the opportunity to participate in a public review of maintenance, unloading, and decommissioning processes and procedures in question and an opportunity to

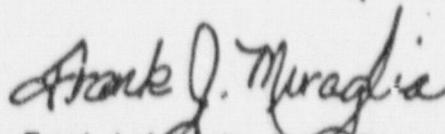
comment on draft findings after investigation by the NRC; (11) order modification of the licensee's Technical Specifications for the Prairie Island ISFSI to ensure a demonstrated ability to, in fact, safely maintain, unload, and decommission TN-40 casks; and (12) review the licensee's processes and procedures for maintenance, unloading, and decommissioning, and if the licensee does not possess capability to unload casks, order the licensee to build a "hot shop" for air unloading of casks and transfer of the fuel.

The Director of the Office of Nuclear Reactor Regulation has determined that the Petition should be denied for the reasons stated in the "Director's Decision Under 10 CFR 2.206" (DD-98-07), the complete text of which follows this notice. The decision and documents cited in the decision are available for public inspection and copying in the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, D.C., and at the local public document room in the Minneapolis Public Library, Technology and Science Department, 300 Nicollet Mall, Minneapolis, Minnesota.

A copy of this decision has been filed with the Secretary of the Commission for the Commission's review in accordance with 10 CFR 2.206(c). As provided therein, this decision will become the final action of the Commission 25 days after issuance unless the Commission, on its own motion, institutes a review of the decision within that time.

Dated at Rockville, Maryland, this 11<sup>th</sup> day of February 1998.

FOR THE NUCLEAR REGULATORY COMMISSION



Frank J. Miraglia, Acting Director  
Office of Nuclear Reactor Regulation



3. Determine that NSP violated 10 CFR §72.122(h) by using a cask that must be placed into the pool for necessary maintenance and/or unloading procedures, while such placement will prematurely degrade the fuel and pose operational safety problems with respect to its ultimate and necessary removal from dry cask storage.
4. Determine that NSP violated 10 CFR §72.122(l) by loading casks and storing them under their license before it had procedures adequate to safely unload and decommission the TN-40 casks.
5. Determine that NSP violated 10 CFR §72.130 by using the TN-40 cask and failing to make provisions capable of accomplishing the removal of radioactive wastes and contaminated materials at the time the ISFSI is permanently decommissioned. This failure may prevent decommissioning.
6. Determine that NSP violated 10 CFR §72.11 by failing to provide and include complete and accurate material information regarding maintenance and unloading of TN-40 casks in their ISFSI application and in subsequent submissions regarding cask maintenance and unloading issues.
7. Determine that NSP violated 10 CFR §72.12 by deliberately and knowingly submitting incomplete and inaccurate material information regarding maintenance and unloading of TN-40 casks in their ISFSI application and in subsequent submissions regarding cask maintenance and unloading issues.
8. Require that NSP pay a substantial penalty for each cask that the utility has loaded in violation of NRC regulations.
9. Administer such other sanctions for the above violations of NRC regulations as the NRC deems necessary and appropriate.
10. Provide Petitioner the opportunity to participate in a public review of maintenance, unloading, and decommissioning processes and procedures in question and an opportunity to comment on draft findings after investigation by the NRC.
11. Order modification of NSP's Technical Specifications to ensure a demonstrated ability to in fact safely maintain, unload, and decommission TN-40 casks.
12. Review NSP's processes and procedures for maintenance, unloading, and decommissioning, and if NSP does not possess capability to unload casks, order NSP to build a "Hot Shop" for air unloading of casks and transfer of the fuel.

13. Under 5 U.S.C. 553(e), Petitioner requests a formal rulemaking proceeding to solicit information and review current information regarding thermal shock and corrosion inherent in dry cask storage and usage and to define the parameters of degradation acceptable under 10 CFR 72.122(h).
14. Under 5 U.S.C. 553(e), Petitioner requests a formal rulemaking proceeding to define the parameters of retrievability required under 10 CFR 72.122(l).
15. Under 5 U.S.C. 553(e), Petitioner requests a formal rulemaking proceeding for amendment of current licenses and rules for prospective licensing proceedings to require demonstration of a safe cask unloading ability before a cask may be used at an ISFSI.

#### Preliminary Matters and Facts

1. The Prairie Island Coalition (hereinafter "PIC") incorporates herein by reference the facts, argument, and conclusions of the Prairie Island Indian Community's \$2.206 Petition dated May 28, 1997.
2. PIC was established in 1990 for the purpose of location and dissemination of information regarding dry cask storage, and opposition to NSP's plans to construct and operate an Independent Spent Fuel Storage Installation (hereinafter "ISFSI") at its Prairie Island Nuclear Generating Station (hereinafter "PI"). PIC is a coalition of 30 environmental groups, tribal and urban Indian organizations, peace and justice groups, businesses, religious groups, and urban and rural citizen organizations. It is a project of the North American Water Office.
3. At the state level, PIC has been actively involved in Minnesota public decision-making proceedings regarding PI nuclear generation and nuclear waste. This involvement includes formal intervention in the "Certificate of Need" proceeding before the Minnesota Public Utilities Commission, litigation in state courts regarding the Certificate of Need, and on-going legislative and educational efforts on nuclear waste and nuclear generation issues.
4. At the federal level, PIC has an active relationship with the NRC regarding PI nuclear operations. PIC filed a \$2.206 petition with the NRC on June 5, 1995 regarding failure of reactor components and waste management problems, including cask unloading problems. PIC participated in the NRC public meeting in Red Wing, MN regarding NSP and Transnuclear TN-40 cask fabrication quality control problems. PIC petitioned for intervenor status in NSP's licensing proceeding before

the NRC regarding a site in Florence Township for an alternate site to store nuclear waste. PIC has also monitored NRC meetings in Washington, D.C., regarding waste issues, and has met and exchanged written communications with NRC staff about these issues.

5. In a February 25, 1997 letter from Gail H. Marcus of the NRC staff, Ms. Marcus acknowledged that there is no "...actual experience in unloading spent fuel from a cask following a long period of storage..." Exhibit A, February 25, 1997 Letter from NRC's Gail Marcus to George Crocker, Steering Committee, Prairie Island Coalition. Ms. Marcus states that instead, the NRC staff rely on a "general understanding" of technical capabilities and related experiences to assess the adequacy of a licensee's procedures for unloading dry storage casks that have contained irradiated fuel for a period of time.
6. Irradiated fuel in storage casks will experience thermal shock when a cask is reflooded prior to unloading. Thermal shock may degrade fuel assemblies, perhaps extremely dramatically. Degraded fuel assemblies can increase radiation exposure to workers and off-site due to the compounded difficulty of adequately isolating irradiated fuel debris, the increased venting of radioactive gasses from the increased number of fissures in the debris, and the potential involvement of criticality issues. In the February 25, 1997 letter, Ms. Marcus recognizes that "...the limited unloading experiences with storage casks have not involved temperature differences between fuel and coolant..." and that such differences create the potential for "thermal shocking." There have been no procedures developed to protect operation safety if thermal shocking occurs, and no assessment of how those procedures impact worker or off-site radiation exposure.
7. Thermal shock may cause fuel assembly degradation. In the February 25, 1997 letter, Ms. Marcus acknowledges that fuel disintegration patterns could lead to fuel reactivity for criticality considerations. She states that, "Upon detection that fuel disintegration has occurred, special measures would be developed and implemented to assure an adequate safety margin is maintained during unloading." In other words, the measures have not been developed, and there has been no assessment or evaluation regarding the actual ability of such measures to adequately protect worker and public health, and the environment. Safety margin references may also be assumed to refer to the question of whether the disintegrated fuel could be physically unloaded at all.

8. Also in this letter, Ms. Marcus reaffirms that SARs "over-simplify matters" when they state that unloading is basically the reverse of loading, because such statements do not reflect that the unloading process introduces different conditions and complications compared to the unloading process.
9. In a letter dated July 10, 1997, from Beth A. Wetzel of the NRC staff to NSP, Ms. Wetzel requests additional information regarding the PI spent fuel special ventilation technical specifications. Exhibit B, July 10, 1997, Letter from NRC's Beth A. Wetzel to Roger O. Anderson, Director of Licensing and Management Issues for NSP. In this request, Ms. Wetzel has clearly acknowledged the importance of the considerations which she raises, taking these concerns a step further than Ms. Marcus in her letter (Ex. A), particularly regarding concerns about steam pressurization when the cask is initially filled with radioactive pool water prior to loading.

This request raises valid questions about the ability of the pool ventilation system to adequately vent, contain, and filter radioactive material coming out of the cask as the water enters. Ms. Wetzel acknowledges the potential for thermal shock, and that a cask unloading procedure which produces this effect may result in significant radioactive contamination of the environment. Degradation of the fuel and/or assemblies due to thermal shock is equally troubling.

10. It has long been known that unloading is more complicated and wholly distinct from loading. This fact is confirmed in a study of the unloading of Transnuclear's TN-24P, where over time, the material stored in the cask was misshaped and impossible to remove. Exhibit C, October 18, 1990, INEL Letter from Schmitt to Fischer. Exhibit D, November 21, 1990, INEL Letter from Schmitt to Fischer.
11. On April 16, 1997, Jack W. Roe of the NRC sent an internal memo to another Staff member defining NRC's dry cask storage terms. Exhibit E, April 16, 1997 NRC Memo from Jack Roe, Director, Division of Reactor Projects III/IV, Office of Nuclear Reactor Regulation, to Cynthia D. Pederson, Director, Division of Nuclear Materials Safety, Region III. This memorandum offers "clarifications regarding the terms ready retrieval and structural defects." In this memorandum, Mr. Roe defines "ready retrieval" to mean that the regulations do not require licensees to be able to immediately retrieve waste. See 10 C.F.R. §72.122(1). In his explanation of why licensee's ability to "someday, somehow, maybe" retrieve spent fuel from storage would meet the regulatory requirements, he fails to take into account

the physical realities, problems and constraints identified by Ms. Marcus in her letter of February 25, ' , or the difficulties encountered in the INEL study where the material simply could not be unloaded due to deformities and changes over time.

12. Mr. Roe also stated that:

[S]taff has not identified the unloading of a cask as a required protective measure to be taken within a specified time in order to limit the offsite consequences of an accident involving the release of radioactive material from a storage cask.

Id. This is Mr. Roe's rationale for allowing a utility to operate where there is not enough room in the spent fuel pool to unload immediately, i.e., at Prairie Island, or where a spent fuel cask has weld flaws, i.e., Palisades, where welds have failed. Mr. Roe did not address the issue or assurance that the utility can in fact unload the casks.

13. There are other reasons to unload a cask that have not been addressed in Mr. Roe's letter. The NRC has clearly stated that:

[S]hield-lid weld failures affect the integrity of a cask confinement boundary. The root-cause of the shield-lid failures and the potential for delayed cracking on loaded casks must be understood. Although the failure of both the cask's inner shield-lid seal weld and outer structural-lid weld would not pose an off-site threat to public health and safety, such an occurrence would cause the loss of the helium atmosphere inside the cask. The loss could result in cladding degradation and future fuel handling and retrievability problems. Since one of the design requirements of the cask is the long-term protection of the fuel cladding [10 CFR 122(h)], such degradation would be unacceptable.

Exhibit F, April 15, 1997, Letter of NRC Inspection Report.

Mr. Roe's rationale does not address the potential for helium leaks inherent in failed welds that would cause unacceptable degradation. A similar credible event at Prairie Island would be the occurrence of a leak in the cask seals. In such a situation, whether the cask can be unloaded immediately is not the issue. The issue is whether it can, in fact, be unloaded at all. For over two years, Consumers Power has demonstrated that it is unable to unload the cask with failed welds.

14. Another reason casks must be placed into the pool and opened is obligatory cask maintenance which must be completed on Transnuclear's TN-40 cask. Exhibit G, NSP SAR for Prairie Island ISFSI, Table 5.1-2. Seals must be replaced, or again, there will be a helium leak and unacceptable degradation. It also does not address whether NSP can replace a seal on a cask 20 years after it was loaded or when a seal fails. And seals do fail. Again, Mr. Roe's rationale does not address whether the cask can, in fact, be unloaded.
15. Another reason the TN-40 casks at Prairie Island would require unloading is that state law requires that they be moved off of Prairie Island. This state requirement anticipates that the casks must be moved after a term of temporary storage, in Minnesota defined as eight years. In the matter of Spent Fuel Storage Installation, 501 N.W.2d 638 (Minn. Ct. App. 1993). Even if the spent fuel were to stay for the life of the NRC license, it would have to be unloaded to move to a federal interim site or repository, as provided in the NRC's Waste Confidence Decision and upon which all nuclear waste storage facilities are premised. September 11, 1990, Waste Confidence Decision Review, 54 CFR 39767. Again, this is another scenario where the NRC's anticipation of the necessity of unloading is inadequate.
16. Yet another scenario where unloading is required is for decommissioning. NRC authority rests on the requirement that it license only facilities that can be constructed, operated, and decommissioned. NRC regulations require that the facility "be designed for decommissioning," and that the licensee make provisions to "facilitate the removal of radioactive wastes and contaminated materials at the time the ISFSI...is permanently decommissioned." Because there are unaddressed unloading issues such that it is unreasonable to assume that the TN-40 cask can indeed be unloaded, NSP has violated the rule by failing to make the required provisions that assure it can decommission the licensed facility.
17. There is an important distinction to be made between immediate cask unloading and the actual ability to unload a cask. Mr. Roe is correct in that the NRC's rules do not require a licensee be able to immediately unload a cask. The NRC rules do clearly require that a licensee be able to unload a cask. The technical difficulties that have been documented thus far give sufficient reason to doubt a cask can be unloaded in a pool if it has been used for storage for some time. Further, because unloading in a pool has not been completed, there is sufficient reason to require that a

utility demonstrate that it can unload a cask. If the utilities can demonstrate that a cask can be unloaded in a pool after long-term storage, we can rest assured with the knowledge that, although they may not be able to unload it as soon as the need to unload appears, they will in fact be able to unload it at some reasonable point in time.

18. No dry cask that has been used for storage for some time, i.e., over a year, has been unloaded in a pool. There are issues that remain unaddressed, and NSP has not demonstrated that it is able to unload a cask in its pool. It has no other facilities for unloading.
19. The NRC itself declares that cladding degradation, because it could lead to future fuel handling and retrievability problems, is unacceptable. Ex. F, 4/15/97 NRC's Susan Frant Shankman Letter to Sierra Nuclear. In that particular case, the letter writer is concerned with degradation due to escape of helium, and emphasizes that:

Since one of the design requirements of the cask is the long-term protection of the fuel cladding [10 CFR 72.122(h)], such degradation would be unacceptable.

Loss of helium from the TN-40 cask is an anticipated event, hence NSP's seal pressure monitors. Exhibit H, June 30, 1995, Notice of Violation, Inspection Report, 7.1, p. 23. However, the degradation that a helium leak would cause is not addressed, nor is the method by which NSP would replace the defective seal.

NSP's TN-40 cask runs the significant risk of degradation due to thermal shock, loss of helium through failed seals, and most importantly, degradation due to the passage of time. NSP's TN-40, its seal maintenance program, thermal shock inherent in placing the cask in the pool, and degradation over the passage of time make this cask unsuitable for storage. NSP is therefore in violation of 10 CFR 72.122(h).

20. In a study of the TN-24P, which NSP claims is so very similar to the TN-40, conducted by INEL in 1990, INEL experienced serious thermal problems, not related to cladding, but to the structure of the inserted canisters. Exhibit C, INEL Letter, October 18, 1990; Exhibit D, INEL Letter, November 21, 1990. It is important to note that these were canisters containing assemblies, which allowed less room in the basket. It is equally important to note that these casks were unloaded in air in a Hot Shop. These canisters had been stored for several years, and the thermal damage was so severe that the canister could not be

unloaded. In the October 18, 1990 letter, the writer declared:

[T]he canisters had "setup" in some fashion: thermally, twisting, bowing, corrosion or other..."

The canisters had apparently taken on a set most probably thermally induced although possibly including other factors such as bowing, twisting or other. The laminated makeup of the TN-24 basket may also be involved...It should be clear, nevertheless, that the experience encountered should receive future focus since the inability to extract at least one of the assemblies with existing equipment is apparent.

In the November 21, 1990, letter, in the "Review of Stuck Fuel Assembly Issue," the writer said of the damage:

[T]hermal expansion of the canister is the most probable cause, bowing, twisting or other mechanisms cannot be eliminated as possibilities; we presently have little capability to determine the root cause because accessing the assembly or the basket is not feasible with fuel in the cask. For the other six canisters in the TN-24P, it is possible, although not probable, that additional canisters may be unremovable, it is also possible that canister number 18 is no longer stuck because of thermal unloading of the basket following the removal and placement in the VSC-17 cask of 17 fuel canisters.

Id. The letter noted that an attempt could be made to remove the stuck canister, but a major consideration was that it "may become stuck in a partially withdrawn position or that canister damage might be incurred." Clearly, fuel stored in the TN-24P is not retrievable.

21. NSP's SAR for the Prairie Island ISFSI provides that the TN-40 cask seals must be replaced every 20 years, or sooner if there is a seal failure. Exhibit G. The SAR states that as a part of the cask seal replacement, the TN-40 must be placed in the spent fuel pool, and that replacement of the seals is completed in the pool. Yet, as demonstrated by Beth A. Wetzel's 7/10/97 Request, there are unresolved safety considerations recognized by the NRC, primarily ventilation of the flash steam produced by introduction of the cooler pool water into the hot cask. Exhibit B, 7/10/97, License Amendment, Request to NSP. Secondly, there remain unresolved thermal shock issues, where introduction of cooler pool water would crack zircaloy cladding or assemblies.

22. NSP consistently claims that casks can be unloaded, and that "thousands of Transnuclear casks have been unloaded worldwide." Exhibit I, Environmental News, August 1997. NSP has also made this statement under oath in an Affidavit, and in its legal argument. Exhibit J, In the Matter of a Request by Northern States Power Company for Certification of Compliance, C1-96-2189, C8-96-2190, Respondent's Response, p. 5-6; Aff. of Jon Kapitz, p.2. In Mr. Kapitz's Affidavit, he first states that:

The unloading procedure and the relevant design features for the TN-40 casks approved for use at the PI Plant are based upon features and procedures common to existing Transnuclear casks used worldwide, including shipping casks and storage casks like the TN-24P cask.

Exhibit J, Aff. of Kapitz, p. 2 (emphasis added). He goes on to say that:

While NSP has not needed to unload any of the five TN-40 casks that have been loaded at the PI plant to date, a comparable Transnuclear storage cask (a TN-24P cask) has been successfully unloaded as part of a project jointly sponsored by the Electric Power Research Institute and the United States Department of Energy.

Id. (emphasis added). Although it is accepted practice to attach to an Affidavit any source used as the basis for that Affidavit, Mr. Kapitz did not do so! Mr. Kapitz did not even specifically cite the study!

23. Mr. Kapitz's statements are false. He claims that the procedures developed for Prairie Island are the same as those for the TN-24P. However, a fundamental element in NSP's unloading procedure is that it is a pool transfer. A quick review of the study provides a reason it may not have been included with Mr. Kapitz' Affidavit. Exhibit K, EPRI, "The TN-24P PWR Spent-Fuel Storage Cask: Testing and Analyses" EPRI NP-5128, April 1987. The cask to cask transfers in this study were completed in a "Hot Shop" and were AIR transfers. These were not pool transfers as are required at Prairie Island. Hot Shop transfer procedures are inapplicable to pool transfers and do not substantiate any claim that NSP can unload a TN-40 in a pool.
24. NSP's claims that the casks can be unloaded based upon past experience with similar casks, but this is false. NSP claims that it has based its unloading procedures on experience with similar casks, but the casks are not similar because the loading and unloading procedures are distinct.

NSP's claims that the TN-40 casks can be unloaded are baseless.

25. Another study of the TN-24P, conducted by INEL in 1990, also unloaded the TN-24P. Exhibit C, INEL Letter, 10/18/90; Exhibit D, INEL Letter, 11/21/90. This transfer was again an air transfer, and inapplicable for use as an example that the TN-4C can be unloaded in the pool. What study can NSP cite and produce that demonstrates that a TN-40 cask can be unloaded in a pool?

### Conclusions

NSP has violated 10 CFR 72.122(f) because it cannot maintain casks. NSP has not addressed or resolved this problem and has provided inaccurate and incomplete information regarding this issue.

NSP has violated 10 CFR 72.122(h) because the fuel is subject to degradation in the maintenance and unloading process specified by NSP. NSP has not addressed or resolved this problem, and has provided inaccurate and incomplete information regarding this issue.

NSP has violated 10 CFR 72.122(l) because the fuel is not retrievable, it cannot unload casks. NSP has not resolved this problem and has provided inaccurate and incomplete information regarding this issue.

NSP HAS violated 10 CFR §72.130 by using the TN-40 cask and failing to make provisions that facilitate the removal of radioactive wastes and contaminated materials at the time the ISFSI is permanently decommissioned. This may prevent decommissioning in so far as a TN-40 cask that cannot be unloaded can therefore not be decommissioned.

NSP has violated 10 CFR §72.11 by failing to provide and include complete and accurate material information regarding maintenance and unloading of TN-40 casks in their ISFSI application and in subsequent submissions regarding cask maintenance and unloading issues. NSP has received actual and constructive notice that there are cask unloading issues, has even received requests from the NRC that it address some issues, and rather than take steps to correct its unloading problem, it has instead refused to directly address these continuing problems.

NSP has violated 10 CFR §72.12 by deliberately and knowingly submitting incomplete and inaccurate material information regarding maintenance and unloading of TN-40 casks in their ISFSI application and in subsequent submissions regarding cask

maintenance and unloading issues through its continual insistence that it can unload TN-40 casks despite substantive information otherwise, and by the knowing use of inapplicable studies to back up its false claims.

NSP must be held accountable for these violations. It must not be allowed to load further casks until it has demonstrated its ability to unload them before an independent third party and has modified its Technical Specifications to reflect any changes in procedures or equipment to effect this change.

Further, NSP must pay a substantial penalty for its knowing submission of incomplete and inadequate information regarding cask unloading issues, particularly that it is not possible to unload a cask; that no cask used for long term storage has ever been unloaded in a pool; that because necessary cask seal maintenance requires that the cask be opened, placed into the pool and submerged, which cannot be accomplished, NSP cannot properly or adequately maintain the TN-40 casks; that introducing radioactive pool water into a hot cask can cause radioactive flash steam that poses a health and safety threat to workers and the public; that introducing radioactive pool water into a hot cask can cause thermal shock that would damage cladding and assemblies and bend or warp metals with which it comes in contact; that thermal shock would impermissibly degrade fuel and make it irretrievable; that fuel is also irretrievable because NSP cannot unload a TN-40 cask at any time in the foreseeable future; that NSP cannot decommission the casks and site because it cannot unload the fuel to move it to another location; for these reasons, NSP has violated NRC regulations and must be substantially fined.

The NRC must prevent an erosion of public confidence in the NRC's ability to safely regulate the nuclear industry, particularly on waste management issues. The NRC must open a complete and thorough re-evaluation of dry cask storage operations at the ISFSI on Prairie Island and at the many other sites where the issues raised above remain unresolved. Until such time as this evaluation has been conducted, changes made, and problematic processes and procedures demonstrated that assure the NRC and the public of the licensee's ability to safely manage irradiated fuel in dry storage casks through the life cycle of the fuel and casks, the Materials License for ISFSI operations on Prairie Island must be suspended. During the term of suspension, no further casks shall be filled at the Prairie Island site.

Dated: August 26, 1997