

February 8, 1978

SECY-78-80

COMMISSIONER ACTION

For: The Commissioners

From: *WJD*
Lee V. Gossick
WJD Executive Director for Operations

Subject: PROPOSED REPLY TO GAO RE DRAFT REPORT ENTITLED "LICENSING THE FLOATING NUCLEAR POWER PLANT--MANY ANSWERS ARE NEEDED"

Purpose: To request Commissioners' comments on a response to GAO on the subject report.

Discussion: GAO has routinely provided NRC the opportunity to comment on the above referenced report. (This report was provided separately to the Commissioners on January 5, 1978 by OIA.)

The attached letter to GAO takes exception to certain portions of the report.

Coordination: ELD has no legal objection. SD, RES and NRR have concurred in the letter in their areas of interest.

Lee V. Gossick
WJD Lee V. Gossick
Executive Director
for Operations

Attachment:
Proposed letter to
Canfield, GAO

Contact:
CAHaupt, NRR
492-8434



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

Docket Nos. STN 50-477 and 478
and STN 50-437

Mr. Monte E. Canfield, Jr
Director
Energy and Materials Division
United States General Accounting Office
441 G Street NW
Washington, D. C. 20548

Dear Mr. Canfield:

The NRC staff has reviewed the draft of a proposed report prepared by your office entitled, "Licensing the Floating Nuclear Power Plant-- Many Answers Are Needed" - January 1978, and offer the following comments and responses to its contents and recommendations.

We find the report likely to mislead its readers because it does not present a complete, accurate and current overview of the NRC policies and reviews related to the licensing of floating nuclear power plants (FNP). The report has deficiencies in the following general areas:

1. The report and its associated findings and recommendations are premature because they criticize draft information as well as NRC studies and assessments currently in progress, without explicitly acknowledging the status of the NRC review. The report presents the reader with an erroneous impression of inadequacy where, in reality, upon completion of the NRC review many answers will have been provided.
2. Allegations are made with respect to the technical adequacy of both NRC staff and associated contractor reviews in spite of the GAO's candid admission to the staff that they had not enlisted independent technical consultants in their assessment and development of recommendations relative to the NRC evaluations of complex technical issues.
3. There is an absence of discussion of various interagency agreements developed principally by the NRC to assess the broad environmental and safety aspects of the floating nuclear power plant concept e.g., Interagency Regulatory Steering Committee, Memorandum of Understanding between the NRC and U.S. Corps of Engineers, Memorandum of Understanding between the NRC and the U. S. Coast Guard and cooperative arrangements between the NRC and the NOAA.

Our detailed written comments on these and other points were provided to GAO representatives during a meeting with NRC staff members on January 23, 1978. Summaries of the NRC positions relative to specific findings and recommendations presented in the GAO report are provided below.

Preparation of the generic environmental statement:

The GAO contends that the generic statement added little, if anything, to the licensing process because it did not address cumulative impacts of many plants operating simultaneously and did not include specific sites. The staff position is that a programmatic statement which addresses the impacts of a large number of operational FNP's is not a legal requirement and not germane to the application for a license to manufacture eight FNP's. However, the reader should be made aware that the question of generic effects resulting from the deployment of large numbers of FNP's has already been discussed in a report* prepared by the Council on Environmental Quality.

The purpose of the NRC generic environmental statement was to determine for the decision-makers whether there was reasonable assurance that eight FNP's could be sited with acceptable environmental impacts both offshore and nearshore in oceans, rivers and estuaries on the Atlantic and Gulf coasts.

Delays in evaluating siting possibilities:

Contrary to the GAO report, the NRC has not delayed the analysis of riverine and estuarine siting of FNP's. The generic environmental statement (Part II) assessed the environmental impact of various FNP siting alternatives including those in offshore ocean areas as well as at riverine and estuarine locations. The NRC considered the generic statement adequate with respect to the discussion of estuarine and riverine siting of FNP's. Nevertheless, upon receiving comments from the Council on Environmental Quality, the NRC agreed to prepare an Addendum which expands upon the previous assessment of riverine and estuarine siting.

Furthermore, contrary to the report, the NRC has never instructed the applicant to refrain from evaluating siting alternatives to the offshore option.

*OFFSHORE NUCLEAR POWERPLANTS -
A CEQ/Interagency Task Force Study, February 1976

GAO Recommendations:

The GAO recommends that the Chairman, Nuclear Regulatory Commission before issuing a manufacturing license for eight nuclear power plants:

- a) "--evaluate the need for a comprehensive analysis of a core-melt accident on a floating nuclear plant;"
 - b) "--require procedures be developed for mitigating the consequences of a core-melt accident; and,"
 - c) "--require weight parameters be established for the safe operation of the floating plant and insure that these parameters are met."
- a) It is the staff's view that a comprehensive risk assessment as conducted in the Reactor Safety Study (WASH-1400) is unwarranted for the FNP licensing process. Subsequent assessments by the staff and its consultants have shown that WASH-1400 results with regard to airborne releases are generally applicable to the FNP design. With respect to the liquid pathway, a spectrum of accident scenarios (including the core-melt event) will be considered in the staff's revised Liquid Pathway Generic Study (LPGS).

The question of comparing the total risk of a spectrum of accidents (including core-melt) at an FNP with a land-based plant will be considered in the generic environmental statement (Part III) which will draw heavily upon the findings in the revised LPGS report. We believe the generic statement (Part III) and the supporting LPGS are comprehensive in their respective areas of scope.

- b) The GAO recommendation to develop procedures for mitigating the consequences of a core-melt accident is premature because it presumes that risk is high enough to justify such mitigation. The generic environmental statement (Part III) will consider, based upon the revised LPGS and a cost-benefit balancing, whether the total risk of a core-melt event for an FNP would be of such a magnitude that mitigation would be required. If such a need is determined, then the manufacturer or specific owner of an FNP would be required to develop appropriate mitigation procedures or designs for NRC approval.

- c) GAO erred in identifying weight in isolation as a safety issue. The NRC has properly considered weight in perspective with the many other safety and environmental considerations and found that they are more appropriately satisfied by a "no grounding parameter." We have required a site envelope parameter in Supplement No. 2 to the Safety Evaluation Report, NUREG-0054 (See Table 1.2) that the "Plant must not ground under the influence of environmental loads." For each specific site, this requirement dictates a minimum low water depth. Furthermore, the effect of weight on seaworthiness during tow will be reviewed by the Coast Guard in their permit review process. The NRC finds that the establishment of the "no grounding" criteria provides an integrated approach which evaluates the effects of various parameters, and that imposition of such a narrow regulatory requirement (weight monitoring) has no technical merit.

The GAO also recommends that before issuing an operating license for two floating plants off the coast of New Jersey, the Chairman, Nuclear Regulatory Commission:

- a) "--identify specific methods for handling the loading and off-loading of radioactive material and the recovery of such material in case of an accident;"
 - b) "--require that a specific decommissioning plan be prepared for the floating plant and the breakwater; and"
 - c) "--reanalyze the effect on tourism."
 - d) "Further, we recommend that if the licensing review should continue, that the Chairman determine as early as possible if the State of New Jersey is willing to provide a grant for the siting of two floating power plants off that State's coast."
- a) The NRC position concerning loading and off-loading spent fuel casks on barges is that the development of specific handling methods and procedures will be required for review and approval by the NRC before an operating license will be issued and thus this GAO recommendation is consistent with our present policy.

However, the GAO fails to inform the reader that Sections 6.13 and 12.6.9 of the generic environmental statement (FES-Part II, NUREG-0056) related to the OPS application and Section 5.6 of the draft environmental statement (NUREG-0058) related to the Atlantic Generating Station (AGS) application describe in some detail the activities associated with the transportation of nuclear materials to and from FNP's. The utility/owner of an FNP would have to conform to

regulations established by the NRC, the Department of Transportation (U.S. Coast Guard) and affected states regarding the packaging and shipping of nuclear materials. These regulations are intended to insure that the transport of such materials by land, sea or air to and from FNP's will be conducted with an acceptably low level of risk to the health and safety of the public and with adequate protection of the environment. The NRC has established regulations (10 CFR Part 71) that describe design and test requirements for the packaging and transportation of nuclear materials. In addition, the U. S. Coast Guard is responsible for all maritime safety considerations including barge design and operation as well as special aspects of maritime environmental protection including the waterborne shipment of fuel, radioactive wastes and other hazardous cargoes.

- b) It is the NRC policy to determine that there are feasible and acceptable methods for decommissioning nuclear power plants (land-based or floating) rather than to require, before licensing, the specification of a particular plan. This allows for changes in the law and for improvements in technology as well as consideration of future alternative uses of the power plant site in the 30 or 40 years between licensing and decommissioning.

GAO failed to indicate that Sections 9.5 and 12.4 of the generic environmental statement (FES-Part II, NUREG-0056) and Section 10.2.3 of the AGS draft environmental statement (NUREG-0058) discuss various alternative decommissioning techniques for both the FNP itself, the breakwater and associated transmission lines and shore facilities. Contrary to the GAO report, not all of the four FNP decommissioning methods identified by the staff in these statements necessarily require removal of the plant from the breakwater. Furthermore, the staff does not concur with the GAO implication that dismantling of the FNP might have to be delayed some 110 years after cessation of operation to permit sufficient radioactive decay. In this regard, studies of alternative decommissioning methods being conducted for NRC by Battelle's Pacific Northwest Laboratories on a pressurized water reactor show that there is little advantage in waiting the 110 years since radiological exposures from decommissioning work decrease markedly out to about 30 years, but decline at a very low rate thereafter.

Decommissioning the FNP, including the breakwater poses some different, though no more serious problems, than land-based plants and viable decommissioning methods are available.

Although the NRC may in the future require that an applicant develop preliminary decommissioning plans, we conclude that the GAO recommendation to require a specific decommissioning plan at the time of licensing is neither prudent nor in the public interest.

- c) The GAO report does not adequately characterize the scope of the staff's analysis of the potential effect of a floating nuclear plant on tourism. The report only discusses a draft of a study prepared by Baker and West of Florida State University for the NRC, "Impact of Offshore Nuclear Generating Stations on Recreational Behavior at Adjacent Coastal Sites." Both the staff's investigation and the Baker study are broader in scope than depicted by the GAO report.

In addition to the Baker study, the staff assessment considers:

- a. Various studies of the social and economic impacts from construction and operation activities in the vicinity of operating nuclear power plants; (These studies have been sponsored by, or conducted by, the NRC.)
- b. A staff survey of recreational behavior at water oriented recreational facilities in the vicinity of operating nuclear power plants; and,
- c. The literature on human behavior relative to exposure to natural hazards and the literature on risk taking.

Although the GAO staff admits to no special expertise in statistical or behavioral analysis, the GAO questioned the conclusions in the Baker study indicating "...the adjustments made to the percentage seem one-sided in that they all have the effect of reducing the percentage." Percentage refers to percent of beachgoers who initially claim they would avoid the beach if an FNP were sited offshore. Professors Baker and West conducted a multifaceted investigation that went considerably beyond simple reporting of raw survey results. In their final report, "Impact of Offshore Nuclear Generating Stations on Recreational Behavior at Adjacent Coastal Sites," (NUREG-0394), the authors discuss the problem of inferring behavior from expressed attitudes and the resulting need to integrate information and findings from the multifaceted approach into an overall "impression" of likely behavior. The adjustments made to the initial estimates of intended avoidance and the rationale for modifying verbal responses when predicting actual behavior are explained in NUREG-0394, Chapter 6 and Appendix D, respectively.

As indicated, the staff has not completed its analysis of tourism as related to FNP's and, as such, the GAO recommendation is unwarranted at this time.

Mr. Monte E. Canfield, Jr.

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- d) The general NRC policy with regard to our review of applications for nuclear power plants prior to acquisition of the associated site is, unless other events render a Commission proceeding moot, that the Commission's review process will not be stayed based on what might or might not happen at some future date. However, in view of the recent events concerning the status of the AGS application, which are discussed in the GAO report, the GAO recommendation concerning the State riparian grant is moot.

We appreciate the opportunity for providing comments on this draft GAO report.

Sincerely,

Lee V. Gossick
Executive Director for Operations