



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

11/15/00
COMJSM-00-0003

October 31, 2000

COMMISSIONER

Approved with comments.

MEMORANDUM TO: Chairman Meserve
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan

Richard A. Meserve 1/29/01

FROM: Jeffrey S. Merrifield

SUBJECT: STAFF READINESS FOR NEW NUCLEAR PLANT
CONSTRUCTION AND THE PEBBLE BED REACTOR

As you are aware, several utilities are seriously exploring the option of building new nuclear plants in the United States. Joe Colvin, the President of the Nuclear Energy Institute (NEI), recently announced that a new plant may be ordered in the United States within five years, but that conditions for doing so may be ready in as little as two years. In addition to these activities, PECO Energy (PECO) is actively involved in Pebble Bed reactor initiatives in South Africa. If such initiatives prove successful, it is not inconceivable to think that PECO may try to utilize this technology in the U.S. According to recent comments attributed to Corbin McNeill, PECO's President and CEO, PECO could apply for a design certification in as few as 15 months.

I am not prepared to address the likelihood of these initiatives, and I certainly do not want to give the impression that I am in any way promoting them—as I am not. However, given the magnitude of the technical, licensing, and inspection challenges associated with these initiatives, I believe the agency must approach them in a proactive manner. Specifically, I believe it would be prudent for us to take the steps necessary to ensure that the staff is prepared to carry out its responsibilities should new plant orders emerge or should PECO, or any other entity, pursue the Pebble Bed reactor in the United States.

I am sensitive to staff resource constraints, and appreciate that our limited resources must primarily be focused on immediate and definitive needs. However, consistent with the NRC's "Corporate Management Strategies," I believe the Commission must, at a minimum, better understand what general steps need to be taken and the timeframes required to do so, to assure agency readiness should these challenges arise. Therefore, I propose that the Executive Director for Operations (EDO) take the following actions.

1. Assess our staff's technical and licensing capabilities and identify enhancements, if any, that would be necessary to ensure that the agency can effectively carry out its responsibilities associated with a new plant application.

COMMENTS OF CHAIRMAN MESERVE ON COMJSM-00-0003

As events in California have starkly revealed, the Nation is dependent on supplies of reliable and economical electrical energy to provide the foundation for our social and economic well-being. Society may decide that additional nuclear plants should be included in the portfolio of technologies that are deployed to meet expanding energy needs. And, if that is the case, it is incumbent on the Nuclear Regulatory Commission to assure that our regulatory processes do not stand as a needless impediment. The NRC's focus must remain on preserving the public health and safety, but we should seek to achieve that objective in a fair, efficient, and effective fashion. Because COMJSM-00-0003 is intended to assure the NRC's capability to respond to possible future construction, I approve it, subject to the following comments.

First, the staff is already pursuing a diverse range of activities that bear on new construction and the response to COMJSM-00-0003 should not impede these efforts. For example, as indicated by the memorandum to the Commission from the Executive Director of Operations (EDO) of November 14, 2000, the staff is investing resources to stay abreast of new advanced reactor designs because of the possible interest in building such designs in the United States. Similarly, the response to my memorandum of October 24, 2000, which concerns the need to assess the core technical capabilities that will be required of the staff in the future and of the steps that are needed to assure the availability of technically competent staff, should include consideration of the possible need to handle future new construction activities. And, as indicated by the memorandum to the Commission from the EDO of December 18, 2000, the staff is examining various issues relating to our procedural processes that bear on new plant construction. Moreover, the staff is currently discussing cooperative activities related to advanced reactor technology with the Department of Energy, consistent with our existing Memorandum of Understanding governing such interactions. The staff response to COMJSM-00-0003 should reflect an effort to integrate the various activities that are already underway and to determine if there are any significant gaps that require attention.

Second, I join Commissioner Diaz in his suggestion that the Commission's effort in connection with COMJSM-00-0003 should include the Pebble Bed Modular Reactor (PBMR), but should also extend beyond it to encompass other concepts. There is strong interest in the PBMR project in South Africa, which, if successful, could eventually result in construction activity in the U.S. (The NRC has previously indicated that it would provide technical assistance to South Africa in its assessment of the PBMR in part so that our staff could develop familiarity with the application of risk insights in the evaluation of this novel technology.) Nonetheless, it is premature to focus on just the PBMR because there are a variety of other approaches that might also be pursued.

Finally, I suggest that a particular emphasis be placed on the identification of regulatory issues. Nuclear energy will not be an attractive option unless our regulatory system is able to provide adequate assurance of safety through processes that are timely, reliable, and predictable. Because of the delay that can surround rulemaking activities, we should address and correct needless regulatory impediments now. The activities outlined in the EDO's memorandum of December 18, 2000, should facilitate this effort. In this regard, the staff should also incorporate into its planning the need for early interactions with the Advisory Committee on Reactor Safeguards so as to ensure that important technical and regulatory issues receive appropriate consideration by that group.



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October 31, 2000

COMMISSIONER

Approved. See attached
comments.

MEMORANDUM TO: Chairman Meserve
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan

Greta Joy Dicus
Greta Joy Dicus 12/12/00

FROM: Jeffrey S. Merrifield *JM*

SUBJECT: STAFF READINESS FOR NEW NUCLEAR PLANT
CONSTRUCTION AND THE PEBBLE BED REACTOR

As you are aware, several utilities are seriously exploring the option of building new nuclear plants in the United States. Joe Colvin, the President of the Nuclear Energy Institute (NEI), recently announced that a new plant may be ordered in the United States within five years, but that conditions for doing so may be ready in as little as two years. In addition to these activities, PECO Energy (PECO) is actively involved in Pebble Bed reactor initiatives in South Africa. If such initiatives prove successful, it is not inconceivable to think that PECO may try to utilize this technology in the U.S. According to recent comments attributed to Corbin McNeill, PECO's President and CEO, PECO could apply for a design certification in as few as 15 months.

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1. Assess our staff's technical and licensing capabilities and identify enhancements, if any, that would be necessary to ensure that the agency can effectively carry out its responsibilities associated with a new plant application.

2. Given that the NRC has not overseen the construction of a new plant in several years, assess the agency's inspection assets to determine where there are gaps in knowledge and expertise.
3. Critically assess the regulatory infrastructure supporting Part 52, and identify where enhancements, if any, are necessary.
4. Given that staff understanding and expertise associated with the Pebble Bed reactor will take time to develop, assess what should be done by the NRC to gradually build a prudent regulatory foundation and an appropriate level of expertise commensurate with the rate of progress made on the Pebble Bed initiative in South Africa.

I propose that the EDO provide the Commission with a schedule for completing these actions by January 2, 2001. The EDO should also provide the Commission with the results of these assessments, including the timeframes discussed above, upon their completion.

COMMISSIONER DICUS' COMMENTS ON COMJSM-00-0003:

I approve Commissioner Merrifield's proposal to assess the staff readiness and preparation for a potential new nuclear power plant application. The staff should include resource estimates for activities listed in it's schedule for completing the assessment. Since, at this time, we are not certain whether a potential new nuclear power plant might come in under Part 50 or Part 52, the staff should assess the regulatory infrastructure associated with licensing a new plant under both Part 50 and Part 52.

I am pleased that the EDO, as discussed in his November 14, 2000 memorandum to the Chairman and the Commissioners on "Advanced Reactors", has already taken some initial steps to prepare the staff should a new nuclear power plant application be received. As the staff starts the process to become better prepared for a potential new plant application, it is important to recognize the large degree of uncertainty in the planning process. Consequently, the staff should be thoughtful and judicious in committing resources at this time. It seems prudent that we link our commitment of resources to the progress of the industry toward submitting a new nuclear power plant application. Beyond initial regulatory infrastructure assessments, any schedule developed by the staff may be best served by linking it to milestones and not necessarily calendar dates.

The staff should work with NEI and other stakeholders to appropriately exercise aspects of the review and approval process and identify potential policy issues for resolution as early as possible.



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MEMORANDUM TO: Chairman Meserve
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan

Approved with attached
comments.

Nils J. Diaz 01/24/01

FROM: Jeffrey S. Merrifield

SUBJECT: STAFF READINESS FOR NEW NUCLEAR PLANT
CONSTRUCTION AND THE PEBBLE BED REACTOR

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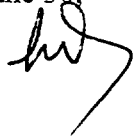
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COMMISSIONER DIAZ' COMMENTS ON COMJSM-00-0003

The staff has initiated a series of activities e.g., EDO's memorandum to the Commission on "Advanced Reactors", November 14, 2000, to address the issues that would arise should new plant orders emerge in the near future. However, I support Commissioner Merrifield's proposal as a more disciplined approach to become cognizant of and proactively address the requisite programmatic and resource issues. Therefore, I approve proposed actions 1, 2 and 3 as stated in Commissioner Merrifield's "Staff Readiness for New Nuclear Power Plant Construction and the Pebble Bed Reactor". I believe that proposed action 4 should be expanded to include Generation 3 + or Generation 4 light water reactors, like Westinghouse's IRIS.

It appears that more reliable information is to be available soon on the issues and schedules. The staff should provide the schedule requested in the COM, including the addition recommended above, by mid-March 2001 and provide a preliminary programmatic assessment by June 30, 2001.

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COMMISSIONER

Approved. See attached comments.

Edward McGaffigan, Jr.
Edward McGaffigan, Jr. 1/2/01

MEMORANDUM TO: Chairman Meserve
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan

FROM: Jeffrey S. Merrifield *JSM*

SUBJECT: STAFF READINESS FOR NEW NUCLEAR PLANT
CONSTRUCTION AND THE PEBBLE BED REACTOR

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Commissioner McGaffigan's Comments on COMJSM-00-0003

I agree with Commissioner Merrifield that the Commission needs to approach the possibility of new reactor orders and the further licensing of advanced reactor designs in a proactive manner. That was the promise of the Commission in both its 1986 and 1994 policy statements on regulation of advanced nuclear power plants. However, we also will need to deal with the tremendous uncertainty about some of these plans in making budget decisions and resource commitments. Since our budget is derived from licensee fees, we will also face choices about which of the prospective activities are generic (to be funded from Part 171 annual fees) and which should be charged to a specific licensee under Part 170 fees. To the extent that DOE funding can be provided for NRC activities related to the Generation IV Program, as discussed in Dr. Travers' November 14, 2000 memo, the Commission's decision-making on resource commitments will be made somewhat easier.

As I understand the situation today, we may face design certification reviews for AP-1000, a modular pebble-bed high temperature gas reactor (PBMR), and an integrated modular light water reactor (International Reactor Innovative and Secure (IRIS)) in the next few years. The plans for the AP-1000 are the most advanced and discussions with the staff and ACRS are ongoing. The PBMR design certification could be submitted in 2002 (but not concluded until 2006 because of the need for prototype testing of the initial reactor planned to be constructed in South Africa). The IRIS design certification could be submitted somewhat later, but Westinghouse has said it would like to achieve design certification by 2007. In addition, according to press accounts, we could be receiving early site permit applications from multiple utilities by next year. An application for a combined license to build and operate one of the three currently certified advanced reactors (ABWR, System 80+ and AP-600) might not be far behind (in a December 10, 2000 memo, Dr. Travers mentioned growing industry interest in a new plant order in the 2005-2006 timeframe).

Like Commissioner Merrifield, I cannot judge the likelihood of these activities. But it is clear that we could be facing a tremendous challenge which as recently as three years ago seemed a remote possibility. I therefore agree with the Commissioner Merrifield's proposed actions, and agree with Commissioner Diaz' proposal to expand proposed action 4 to include all Generation 3+ or Generation 4 light water reactors.

I would encourage the industry to be as specific as possible about their plans and schedules so that the agency can plan and budget for advanced reactor activities without disrupting our current important initiatives. Any currently unbudgeted advanced reactor activities will be coming at the same time as a bow wave of license renewal applications, large numbers of license transfer requests associated with industry restructuring, and a growing workload in the area of spent fuel storage, including the initial license renewal for a dry cask storage facility. I would prefer not to face unexpected tradeoffs between resources for these activities and resources for the advanced reactor activities.

EMG