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

April 9, 1980

Docket No. 50-285

Ms. Dagnia Prieditis
Associate Planner
Metropolitan Area Planning Agency
7000 W. Center Road
Suite 200
Omaha, Nebraska 68106

Dear Ms. Prieditis:

Thank you for your letter of February 11, 1980, which forwarded two letters on the Fort Calhoun Nuclear Plant. We have enclosed a copy of our response to Mr. Webers letter. We also acknowledge receipt of comments from the League of Women Voters of Omaha on the proposed power increase at Fort Calhoun.

Mr. Erickson, of my staff, stated that he thought that the public meeting between Omaha Public Power District (OPPD) and your organization was a very usefull interchange between your agency, local citizens, OPPD and the NRC. I wish to thank the Planning Agency and Mr. Kershen in particular for his efforts in arranging the meeting with OPPD and assuring that there was significant public participation. A number of members of your organization and other attendees at the December 11, 1980 meeting expressed to Mr. Erickson and Mr. Lobel of the NRC that this type of meeting was a good way for public comment and interaction on issues involving nuclear power plants. I share that feeling and will encourage OPPD and other utilities within my area of responsibility to use this type of meeting with the public to allow their comment and interactions on issues which are or could be of significant public interest.

Sincerely,

Robert W. Reid

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Enclosures: As stated

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RESPONSE TO QUESTIONS

FROM MR. J. WEBER, JR.

FORT CALHOUN NUCLEAR POWER PLANT

Question 1) With the possible exception of the Maine Yankee plant which experienced both a 190KW (thermal) and 35MW (DER) boost between December 1975 and December 1978---and might possibly qualify as a "stretch power" unit---I am not satisfied that OPPD nor anyone else attending the public meeting on January 16 actually verified the existence of any nuclear plants that have been granted "stretch power" status in this country. In fact though a 2,257.5 MW (thermal) increase occurred in total at 6 plants during that time frame, a net reduction of 37MW (DER) also occurred during that time.

a. Has the NRC granted any plants stretch power rating? If so, which ones and how many MW (thermal)?

Answer 1(a) Yes, the NRC has granted "stretch power" increases at Calvert Cliffs 1 and 2 and Millstone Unit 2. Each of these plants was authorized an increase from 2560 MWt to 2700 MWt "stretch power". Calvert Cliffs Unit 1 and 2 were authorized "stretch power" increases on September 9, 1977 and October 19, 1977 respectively. Millstone Unit 2 was authorized a "stretch power" increase on June 25, 1979. Other plants have been authorized increases in power but the term "stretch power" is a term used only by Combustion Engineering (CE) for the plants they designed.

Question 1(b) Why the net reduction of 37MW (DER) during that time frame?

Answer 1(b) We have reviewed the NRC Operating Units Status Reports "Grey Books" for December 1975 and December 1978 to respond to this question on Licensed Themal Power and Design Electrical Rating (DER).

First of all, DER is an estimate of the capability of a reactor when a plant is designed. DER is based on the projected thermal power that a plant is designed for, even though the initial licensed thermal power may be less. Because of this, the DER may not change if the authorized thermal power is increased. Zion 1 and 2 are examples of this. The authorized thermal power for each of these units was increased from 2760 to 3250 MWt between December 1975 and December 1978. During this same period, the DER remained constant at 1040 MWe.

The vendor assumed that the reactor would eventually be licensed at 3250 MWt when the DER was calculated. The "Grey Books" also list the maximum dependable capacity (MDC) for each plant. This is a more appropriate measure of plant performance for a particular licensed thermal power. For Zion 1 and 2, the net MDC increased from 850 MWe to 1040 MWe during the period of December 1975 to December 1978. During the period of December 1975 to December 1978 there was, however, a decrease in DER at one plant due to the addition of cooling towers. The Palisades plant had a decrease in DER from 821 MWe to 805 MWe because of the addition of cooling towers. For Palisades, the vendor assumed a thermal power of 2530 MWt in both instances although the authorized thermal power was increased from 2200 to 2530 MWt.

Question 1(c) Why are not both the thermal and electrical ratings of nuclear reactors licensed by the NRC?

Answer 1(c) Thermal power is licensed by the NRC because the thermal power is directly related to reactor safety. Electrical power output is a result of both plant efficiency and thermal power. Plant efficiency and, therefore, electrical power output depends on condenser cooling water temperature as well as other factors. Fort Calhoun, for instance, is more efficient and can generate more electrical power in the winter than in the summer, because the river water that cools the condensor is colder. The efficiency of the plant does not effect the reactor safety.

Question 2) Why do NRC regulatory/licensing procedures permit OPPD to put Exxon fuel in its Fort Calhoun reactor before an OK has been given by the NRC to operate with such fuel?

Answer 2) The loading of fuel is permitted, without prior approval by the NRC, if it is accomplished within the requirements of the Technical Specifications and involves no unreviewed safety questions with respect to refueling operations and the reactor core. The Technical Specification requirements provide adequate assurance that there will be no significant safety problems as a result of refueling. Our authorization of operation with fuel from a different manufacturer requires an analysis from the licensee that demonstrates safe operation with the new fuel. Exxon fuel has been used at the Palisades, H. B. Robinson and D. C. Cook Nuclear Plants in combination with fuel from other fuel suppliers. Delays in a restart or a revision to the Technical Specifications can result from our review. If the

new fuel used in a refueling operation at a plant is not satisfactory for safe operation, we would not authorize the plant to restart.

Question 3) Has the NRC (or its predecessor AEC) ever denied an application for mixed fuel operation after the fuel has been loaded?

Answer 3) No, the NRC has not denied an application for operation following fuel reload simply because it included fuel from two different fuel suppliers. The licensees are well aware of the analysis that is required for reactor operations following refueling and the fuel characteristics that are required. We are not, however, bound to authorize a restart of any reactor following a refueling. We would not authorize a restart of a reactor unless our evaluation demonstrated that the reactor would be operated safely with that fuel.

Question 4) Cycle 5 will probably be the longest that OPPD envisions for Fort Calhoun. In light of the length of such cycle, is it not at least a little unusual that Cycle 5 has concluded with no NRC OK on either Exxon fuel loading/operation and/or stretch power? Or that OPPD waited until so close to the end of Cycle 5 to make its applications?

Answer 4) No, it is not unusual that the NRC has not completed its evaluation prior to loading of the fuel. In fact, this condition reflects the general case rather than an exception. On July 17, 1979, OPPD did submit their application for a power increase and the use of Exxon fuel in Cycle 6. In addition, a meeting was held between the NRC and OPPD on March 27, 1979, to discuss OPPD's plans for a power increase. We determined, during our review, that additional information was needed for us to finish our review. OPPD has provided additional information in several submittals since July 17, 1979.

Question 5) Why are 10 more barrels of low-level wastes to be generated using Exxon fuel as opposed to CE fuel per year?

Answer 5) OPPD indicated at the January 16, 1980 meeting, that about 10 more barrels of low-level wastes may be generated per year with the proposed increase in power level. The use of fuel from Exxon rather than CE fuel will not change the amount of low-level waste generated.

Question 6) Why not (should Exxon fuel operation OK be granted) does OPPD retain 1,420MW (thermal) rating and just operate longer between refueling? Wouldn't such operation save more than stretch power could generate in added revenues?

Answer 6) We do not have any responsibility for evaluating the economic advantage of operating at the higher power level. In general, however, the efficiency or cost per unit of electrical energy would be reduced if a particular sized plant were operated at a higher power level, because the capital costs remain essentially constant.

Question 7) In OPPD's application(s) in 1979, did the utility address the cost of saving 33MW of electricity via conservation, cogeneration or solar/wind alternatives? If not, why don't NRC regulations require an applicant to make such a valuable and important assessment? Isn't a similar assessment on alternatives now required of new plant construction work permits? Why not the same procedure for existing plants undergoing modifications in performance?

Answer 7) No, OPPD did not address the cost of saving 33 MW of electricity via conservation, cogeneration or solar/wind. OPPD did, however, evaluate the cost of building a new plant and the use of existing oil fired peaking plants or existing coal plants for additional power. The NRC is required to evaluate the environmental effects of any proposed change in operation at a plant. The NRC is evaluating the "Environmental Assessment" that OPPD submitted for the proposed change in power level at Fort Calhoun. The NRC regulations do not require another environmental statement or a re-evaluation of alternatives unless the proposed power increase has a significant environmental effect above that which was evaluated in our Fort Calhoun Final Environmental Statement. The Final Environmental Statement was done for 1500 MWt.

Question 8) Everyone seems in agreement that Fort Calhoun has an actual design limit of 1,500MWt. Then why is OPPD permitted to plan a 1,560 rating? Similarly, the 1,560 rating is 10 percent above current 1,420---why 10%?

Answer 8) The NRC authorizes a reactor power level based on the Safety analysis provided by a licensee and evaluated by the NRC staff. The Fort Calhoun reactor power level is presently limited to 1420 MWt by our License to OPPD. The requested power level of 1500 MW is, as you know, now being considered by the NRC. OPPD cannot be prevented from planning to ask the NRC for an additional increase in the power level at Fort Calhoun. The present Final Environmental Statement is, however, based on 1500 MW thermal. We would require adequate supporting analysis, both safety and enviornmental, before authorizing any

increase from 1500 to 1560 MWt. The OPPD analysis for Fort Calhoun are based on 1500 MWt, but OPPD may be able to show with safety analysis that the Fort Calhoun design is adequate or can be changed to allow a futher increase. The possibility of proposing 1560 MWt was mentioned at the January 16, 1980 meeting but this may not be proposed or may be changed before OPPD submits any formal proposal.

Question 9) Do current NRC procedures/regulations require a demonstration of <u>need</u> for stretch power applications? The verbal replies by OPPD personnel certainly did not indicate a need for an additional 33MW. To the contrary, through the first 10 months of 1979 OPPD ratepayers used only about 75% of the total electricity generated by OPPD units. Shouldn't the interest of OPPD's ratepayers---both economic, safety and environmental---come foremost in any review that NRC might perform of an analysis for further increasing the generating capacity of a unit beyond what is prudently needed?

Answer 9) No, the NRC regulations do not require the demonstration of the need for additional power for a stretch power application unless that increase represents a significant change from our cost-benefit analysis in our Final Environmental Statement. The safety and environmental interests of all people who may be affected by operation of a plant are considered in our environmental evaluation, not just the ratepayers for a particular utility.

Question 10) It was not clear <u>why</u> Exxon Nuclear Company was revising its computer code. What are the reasons?

Answer 10) There has been no revision of Exxon codes submitted by OPPD for the reload or power increase. Exxon originally intended to revise the computer code used to calculate the consequences of a Small Break LOCA for Fort Calhoun. These revisions were not accomplished in time for the Fort Calhoun Cycle 6 startup. We, therefore, required OPPD to demonstrate that the existing Small Break LOCA calculation for 1420 MWt done by CE was still valid with Exxon fuel in the core. This was done to our satisfaction. OPPD has not yet submitted a Small Break LOCA analysis valid for 1500 MWt.

Question 11) Why are small break analysis and set points an item of concern with the loading of Exxon fuel?

Answer 11) Small break analysis and set point evaluation is an important part of all reload analysis whether fuel from a different vendor is used or not.

Question 12) Someone from either your or OPPD's staff mentioned that when a request for a 1,560 MWt rating is made to the NRC that at least a public meeting will be held without the need for a special request such as by the Natural Resources Committee. Is this correct? But also shouldn't it be a normal course of events to hold a public hearing on each operating nuclear plant every three years (five maximum) regardless of license modifications or not? The main topic of such meetings would be a status report to the ratepayers of the utility...and provide an opportunity for questions and comments on such operational status.

Answer 12) Yes, OPPD mentioned at the January 16, 1980 meeting, that a public meeting will be held if they request a further increase, to 1560 MWt, in power level. All meetings between the NRC and a reactor licensee are open to the public. If there are any questions or comments from members of the public, they would be received by the NRC staff following the meeting. Questions and comments could be given at the meeting location itself or by phone or in writing following a meeting.

Question 13) One last question/comment on the design limits of Fort Calhoun... is the failure/deterioration of the same seal in a coolant pump within a 16-month indication that already the unit is at its operational limits? What is, after all, the weakest link in the Fort Calhoun unit? If such a determination has not been made, when will it?

Answer 13) All equipment at the plant is installed with its life expectency and failure rate considered. Reactor coolant pump seal failures are not unexpected and the plant is designed so that they can be handled safely. There are three seals in series on each primary coolant pump at Fort Calhoun. One seal is enough to prevent serious leakage from a pump. One seal on each of two primary coolant pumps (A Pump and B Pump) had degraded at the time of the December 1979 shutdown. The previous pump seal replacement that you mentioned (June 1978) involved a seal in the D Pump only.

We agree with you that primary system integrity is important and we require that a plant be designed and constructed so that the primary system has a low probability of abnormal leakage. We review all safety systems to assure that they are adequately redundant and adequate in design and construction. The Fort Calhoun Technical Specifications includes "Limiting Conditions for Operation" which

specify a plant shutdown or other restrictions on plant operation if the required redundant safety related systems are not operable or exceed certain limits. Primary System Leakage (Technical Specification 2.1.4) is one such limit for Fort Calhoun.