



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 31 TO

FACILITY OPERATING LICENSE NO. R-2

PENNSYLVANIA STATE UNIVERSITY

DOCKET NO. 50-5

1.0 INTRODUCTION

By letter dated January 25, 1994, the Pennsylvania State University (Penn State or licensee) submitted a request for amendment for a one time, 6 month extension for the surveillance of fuel elements and control rods to reduce the number of fuel movements.

2.0 EVALUATION

The licensee stated that the fuel element and control rod surveillance is currently required on or before February 13, 1994. The licensee had planned a modification to the reactor bridge which also requires off-loading of the reactor core at the same time as the surveillance. However, because of a delay in the delivery of components for the modification it cannot be accomplished. The licensee currently plans to start the reactor bridge modification in May or June 1994. The licensee has proposed that surveillance of fuel elements and control rods be delayed 6 months to allow for completion of the modification and inspection of the fuel elements and control rods in a controlled timely manner with only one fuel off-loading.

The licensee stated that the previous inspection of fuel elements and control rods found no failures or indications of abnormal degradation and that there is no reason to believe that the fuel element or control rod condition has changed. The licensee has estimated that the extension of the surveillance requirement would change the pulse reactivity that the core has experienced from less than 10 percent to about 12 percent of the limit, at which fuel element and control rod inspections are to be conducted. The licensee has requested this delay to the surveillance requirement because they concluded that the chance of fuel element damage is greater during fuel handling than during normal operations and the elimination of one fuel off-loading would improve overall facility safety.

The NRC staff agrees with the licensee conclusion that the reduced amount of fuel handling decreases the likelihood of fuel damage, and is a prudent thing to do based on the licensee submittal. Further, the NRC staff has extensive regulatory experience with the type of fuel at the Penn State research reactor, and is not aware of any significant problems. The NRC staff also finds that the reduced handling of the fuel will also be consistent with the

As Low As Reasonably Achievable requirements in that it will also reduce the radiological exposure to licensee personnel. The staff also has considered the fact that other surveillance and equipment can provide early indications of fuel element or control rod damage. Specifically, any significant degradation in fuel element condition would be found by the licensee's reactor coolant system water analyses or radiation monitoring system. Also, the measurement of control rod worth and core reactivity conditions as required annually provide indication of continued function of the control rods and fuel elements, respectively. Finally in this regard, the observation of the core condition by operators prior to daily operations provides another indication of fuel element and control rod conditions.

Based on the above, the NRC staff finds that the proposed one time, 6 month extension to the surveillance of fuel elements and control rods to reduce the number of fuel movements is acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves changes in inspection or surveillance requirements. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of effluents that may be released offsite, and there is no significant increase in individual or cumulative occupational radiation exposure. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no Environmental Impact Statement or Environmental Assessment need be prepared in connection with the issuance of this amendment.

4.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously evaluated, or create the possibility of a new or different kind of accident from any accident previously evaluated, and does not involve a significant reduction in a margin of safety, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed activities, and (3) such activities will be conducted in compliance with the Commission regulations and the issuance of this amendment will not be inimical to the common defense and security or the health and safety of the public.

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Date: February 4, 1994