

JUN 12 1953

Iyall E. Johnson, Chief
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CURTISS-WRIGHT RESEARCH REACTOR - PROJECT 28, DOCKET 50-39

A review of the Hazards Evaluation Report, "Curtiss-Wright Research Reactor" for 4 Mw operation, reveals that there are a number of items that need further explanation and discussion before a complete hazards analysis can be made on the reactor. The items on which additional information is needed are as follows:

Fuel and Fuel Handling

1. Describe the design and fabrication techniques used for the 10 and 19 plate fuel elements. Is it planned to have both types of elements at the facility at the same time?
2. Give an analysis of the identification system of the 10 and 19 plate fuel assemblies and the precautions used to insure that the elements are not interchangeable either in or out of the reactor core.
3. What precautions are taken that prevent the interchange of fuel and reflector pieces in the reactor core?
4. How many fuel elements of each kind will be on hand at any time?
5. What is the administrative system that will be used to insure proper and safe handling of fuel elements? Give other precautions to prevent unauthorized handling of the fuel elements.
6. What is the heat distribution and heating values in both the 10 and 19 plate fuel elements at their planned maximum power levels?

Cooling System

1. Summarize the operational procedures followed in going to higher power levels.
2. Describe the procedure in changing from convection cooling to forced circulation. Are there any interlocks involved in this operation?
3. Is there sufficient instrumentation and interlocks on the forced

OFFICE ▶	coolant exit plenum to detect coolant by-pass of the flexible hose. If not, how is one assured that sufficient coolant is				
SURNAME ▶	flowing through the reactor core?				
DATE ▶					

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Shielding

1. What are the dose-rates for areas around the faces of the tank of the reactor at 4 Mw operation? Experience with present facility at 1 Mw operation would be informative.
2. The activation of the pool water due to oxygen-16 activation is described in the report. It is also of interest to know the activation of the pool water due to longer life of the activated oxygen-17. What is the increase in dose-rate at the surface of the water during an operating cycle?

Safety Considerations

1. What is the method used to check out instrumentation prior to nuclear startup?
2. Describe the location of the detectors, particularly in reference to the startup source.
3. What is the core configuration to be used with each type of reflector? Discuss the excess reactivity available for each core geometry and the reactivity control available in the control rods for each case.
4. Describe the personnel on the Curtiss-Wright hazards committee. To whom do they report and in case of a dispute between operation and hazards committee, who resolves the issue?
5. Give a description of typical experimental programs to be carried out at 4 Mw operation.
6. Describe possible accidents due to incorrect loading or intermixing of 10 plate and 19 plate fuel elements; describe possible accidents due to incorrect loading or intermixing of graphite and beryllium-oxide reflectors; describe possible accidents due to intermixing of fuel assemblies and reflector units. Analyze consequences of such accidents. How do these compare with the postulated maximum credible accident?

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— → Edwards

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TO : Iyall E. Johnson, Chief
Licensing Branch

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FROM : Edsen G. Case, Acting Chief
Hazards Evaluation Branch

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