

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D.C.

December 14, 1959

Honorable John A. McCone
Chairman
U. S. Atomic Energy Commission
Washington 25, D. C.

Subject: NORTHERN STATES POWER COMPANY - PATHFINDER ATOMIC POWER PLANT

Dear Mr. McCone:

The Northern States Power Company proposal to build a power development reactor near Sioux Falls, South Dakota, was considered by the Advisory Committee on Reactor Safeguards at its twenty-second meeting, December 10-11, 1959. The proposal had previously been considered at the sixteenth, eighteenth, and nineteenth meetings and in two Subcommittee meetings with the Hazards Evaluation Branch staff and the applicant. The necessary information is contained in the reports listed below. The Hazards Evaluation Branch and representatives of the applicant participated in the discussion.

This reactor is a 204 thermal megawatt boiling water unit with internal superheater, which new developmental feature is one of its important objectives. Design to incorporate the superheater, controls necessary for the unique fuel loading, and a new optional power control introduce special problems. Use of aluminum-clad uranium oxide fuel, previously untried under these plant operating conditions, is proposed.

The applicant has research and design work in progress on these problems which must be resolved before operation as proposed. Part of this development includes partial power range operation and testing in the reactor before full-scale operation.

The applicant proposes stepwise approach to full power and to designed superheat. Operation with reduced superheat or without superheater fuel, with Zircaloy fuel cladding instead of aluminum or without using the special control features has been suggested as feasible by the applicant, and proposed in case of need.

The Committee concludes that the approach suggested as above by the applicant will enable construction of the reactor proposed at its

Honorable John A. McCone
Subject: Pathfinder

- 2 -

Dec. 14, 1959

site with reasonable assurance that it can be operated without undue hazard to the health and safety of the public.

Sincerely yours,

/s/ C. Rogers McCullough

C. Rogers McCullough
Chairman

cc: A. R. Luedecke, GM
H. L. Price, DL&R
ACRS Members & Dr. Duffey - 12/16/59
bc: L. K. Olson, GC - 12/16/59
H. H. Plaine, OGC - 12/16/59

References

- 1) ACNP-5905 - Pathfinder Atomic Power Plant Safeguards Report, March 10, 1959.
- 2) Supplement No. 1 to the Safeguards Report (ACNP-5905), June 26, 1959.
- 3) Amendment No. 3 to the Safeguards Report (ACNP-5905), November 2, 1959.
- 4) Division of Licensing and Regulation report to the ACRS, November 25, 1959.
- 5) Comments by the Office of Health and Safety, December 2, 1959.
- 6) Comments on "Amendment No. 3" by the U. S. Weather Bureau, December 4, 1959.