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U. S. ATOMIC ENERGY COMMISSION  
DIVISION OF REACTOR LICENSING  
REPORT TO ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
IN THE MATTER OF  
PRELIMINARY ASPECTS OF NORTHERN STATES POWER COMPANY'S APPLICATION FOR  
A CONSTRUCTION PERMIT FOR ITS PROPOSED MONTICELLO PLANT UNIT NO. 1

Note by the Director, Division of Reactor Licensing

The attached report has been prepared by the Division of Reactor Licensing for consideration by the Advisory Committee on Reactor Safeguards at its September 1966 meeting.

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PRELIMINARY ASPECTS OF NORTHERN STATES POWER COMPANY'S APPLICATION FOR  
A CONSTRUCTION PERMIT FOR ITS PROPOSED MONTICELLO NUCLEAR GENERATING PLANT

The Northern States Power Company has submitted an application dated August 1, 1966 for a Utilization Facility License and Construction Permit for its Monticello Station Unit No. 1. The site is located on the west bank of the Mississippi River about 3 miles northwest of Monticello, Minnesota. The 1325 acre site will have a minimum exclusion distance of about 1600 ft. to the south of the reactor building and the nearest residence is at 1/2 miles. The nearest population center, St. Cloud, Minnesota (population 34,000) is about 22 miles northwest of the site.

The plant, a direct-cycle General Electric boiling-water reactor, will be designed for operation at 1675 MWt with an initial license limit 1469 MWt and a net electrical output of 472 MW. The Monticello Nuclear Generating Plant is similar to Dresden Units 2 and 3 and Millstone Point and also, except for the use of jet pumps, Oyster Creek and Nine Mile Point nuclear power plants.

One prominent novel feature of this plant is that the reactor vessel will be field fabricated. Although the Facility Description and Safety Analysis Report does not have any discussion of this matter, representatives of NSP have stated that this mode of fabrication is planned.

A second novel feature is that cooling towers will be provided to remove heat from condenser circulating water during those periods when river flow is too low for adequate heat rejection to the river. As a result limited volumetric dilution of radioactive liquid wastes may require radioactive waste storage or holdup tank capacity exceeding that for other equivalent plants.

The Facility Description and Safety Analysis Report provides only a casual reference to the cooling towers.

The ACRS at its seventy-third meeting on May 5-7, 1966, reviewed the site proposed by Northern States Power Company for construction of a boiling water reactor to be operated at 1469 MWt and concluded in a letter to the Chairman USAEC, that "the Monticello site is acceptable for a reactor of the general type and power level proposed if adequate containment and associated engineered safeguards are provided." The DRL Staff in a report to the Advisory Committee on Reactor Safeguards dated April 21, 1966 envisioned no unusual siting problems for a General Electric boiling water reactor at the proposed Monticello site based on a report furnished by NSP and a visit to the site by staff members on April 13, 1966.

Based on a preliminary review of the application, there appear to be no Safety problems which cannot be resolved; however, field fabrication of the reactor vessel, as a "first of a kind" and as an important precedent for the nuclear industry, will receive special attention.