ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

May 11, 1966

Honorable Glenn T. Seaborg
Chairman
U. S. Atomic Energy Commission
Washington, D. C.

Subject: REPORT ON REACTOR SITE FOR NORTHERN STATES POWER COMPANY

Dear Dr. Seaborg:

At its seventy-third meeting on May 5-7, 1966, the Advisory Committee on Reactor Safeguards reviewed a site proposed by the Northern States Power Company (NSP) for construction of a boiling water reactor to be operated initially at about 1469 MW(t). The Committee had the benefit of a Subcommittee meeting on May 4, 1966, of discussion with representatives of NSP, General Electric Company, and the AEC Regulatory Staff, and of the document referenced below.

The proposed site of 1325 acres is on the Mississippi River about three miles northwest of Monticello, Minnesota, approximately 40 miles northwest of the center of the Minneapolis-St. Paul metropolitan area, and 22 miles southeast of St. Cloud, Minnesota. The population density in the general vicinity of the site is low.

A few problems are presented by the maximum and minimum flows of the Mississippi River at this site. The peak flood of record (51,000 cfs) occurred in 1965 and resulted in a crest at elevation 916 feet (MSL) at the proposed site. The 1000-year flood level is estimated at elevation 921 feet. Ground elevations at the site range from 920 to 930 feet, and NSP stated that the reactor and appurtenant structures would be adequately protected against the 1000-year flood.

Another problem relates to minimum river flows. It was reported that the condenser cooling circuit will require about 1000 cfs. River discharges, however, have been as low as 240 cfs and remain below 1100 cfs about 10 percent of the time. For this reason, NSP proposes to utilize cooling towers for recirculation of condenser cooling water during periods of low river flow. During such periods the volume of discharged water into which liquid wastes can be diluted will be greatly reduced.

Water supplies for the cities of Minneapolis and St. Paul are taken from the Mississippi River about 30 miles downstream from the proposed site. NSP and GE propose to include facilities for liquid waste treatment that will be more than adequate to meet the requirements of 10 CFR Part 20. In addition, however, the Committee suggests that NSP consider the desirability of providing supplementary facilities for retention of liquid wastes during periods of low river flow.

The site is underlain by 50 to 80 feet of glacial drift supported on a layer of sandstone 10 to 20 feet thick. Seismic activity in Minnesota has been extremely rare and of minor intensity, but, inasmuch as a detailed seismological report for this site is not yet available, seismic design criteria remain to be established. In addition, consideration should be given to potential damage from tornadoes, which occur frequently in this area.

Transportation of a shop-fabricated pressure vessel of the anticipated size to the proposed site presents many difficulties. NSP and GE are tentatively considering field fabrication of the pressure vessel at the reactor site. The Committee has not reviewed the suitability of a field-fabricated pressure vessel, and, consequently, approval of this site does not imply concurrence with the concept of field fabrication of this component.

The Advisory Committee on Reactor Safeguards believes that the Monticello site is acceptable for a reactor of the general type and power level proposed, if adequate containment and associated engineering safeguards are provided.

Sincerely yours,

/s/

David Okrent
Chairman

Reference:
"Preliminary Information for a Proposed Nuclear Power Plant", Northern States Power Company, March 15, 1966.