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SUBJECT: Application for Amend 69 to License DPR-43,revising Tech Specs to removing limiting condition for operation on North Appleton line contingent upon completing proposed mods to routing of offsite power sources.Fee paid.

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Public Service

September 24, 1985

Dr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
Proposed Amendment No. 69, Increasing Offsite Power Reliability

Proposed Amendment No. 69 is being submitted, concurrent with proposed transmission line routing modifications, to increase operational flexibility.

The Kewaunee Nuclear Power Plant (KNPP) Technical Specifications require that two physically independent offsite power sources be operable to serve the KNPP substation. There are 4 sources of offsite power available to the KNPP Substation; however, a single failure can be postulated that would render 3 of the 4 inoperable. As a result, there is a 7-day limitation on the amount of time that the power source, independent of the three that are vulnerable to a single failure, can be taken out of service while the plant is operating.

Modifications are planned to the routing of offsite power transmission lines that will eliminate the vulnerability of 3 lines to a single failure, hence creating diversity in the pairs of offsite power sources that satisfy Technical Specifications. Also, since the physical independence of two offsite power sources will no longer depend on an individual line; the Limiting Condition for Operation (LCO) on this line's operability can be eliminated.

Proposed Amendment Number 69 is being submitted to remove this LCO contingent upon completing the proposed modifications (described below) to the routing of KNPP's offsite power sources.

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Description of Proposed Change Technical Specification 3.7.b.4, Page TS 3.7-2

Technical Specification 3.7.b.4 has been revised to eliminate the LCO on the North Appleton (R-304) line. As before, if the physically independent criterion cannot be met, power operation may continue for a period not to exceed 7 days as long as 2 power supplies remain operable to serve the KNPP Substation.

Safety Evaluation Technical Specification 3.7.b.4, Page 3.7-2

The physical independence of offsite power presently depends upon one line; the 345 KV, R-304 line. Attachment 2 Figure 1 illustrates that a single failure could affect lines Y-51, F-84, and Q-303. As a result, line R-304 must be in service to satisfy KNPP Technical Specification 3.7.a.8.

WPSC proposes to reroute the 138 KV F-84 line (see Attachment 2, Figure 2) such that the following offsite power supplies are physically independent:

1) R-304 and Q-303
2) R-304 and Y-51
3) F-84 and Y-51

The physical independence of offsite power supplies one and two, above, is clearly illustrated in attachment 2, figure 2. The third pair's physical independence is based on the assumption that a catastrophic failure of line Q-303 will not propagate past deadend tower No. 10 on the same line.

The deadend tower assumption is based upon an analysis of the service data for deadend towers at WPSC. WPSC has not experienced a structural or insulator type failure that has propagated through a 345 KV deadend tower in 545 tower years. In addition, data on 138 KV and 115 KV towers of similar design demonstrates 123 tower years of successful service.

The WPSC service data indicates a failure rate of less than 0.00183/yr. for 345 KV deadend towers and less than 0.00150/yr. for all 345, 138, and 115 KV deadend towers on the WPSC system. This compares very favorably with probabilities for loss of offsite power as reported in "Loss of Offsite Power at U. S. Nuclear Power Plants - All Years Through 1984"[1], which reports probabilities for outages less than 30 minutes at 0.044 per site year for all years through 1984.

In summary, WPSC proposes to reroute line F-84 around existing deadend tower number 10 on line Q-303. This will remove the current susceptibility of lines Q-303, F-84 and Y-51 to a single failure, hence, improving the reliability of offsite power and increasing the level of safety at the KNPP. Additionally, the physical independence of offsite power will no longer be dependent on the R-304 line; therefore, the LCO on its operability is no longer appropriate.

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[1]EPRI, April 23, 1985, American Power Conference

Significant Hazards Analysis Technical Specification 3.7.a.8, Page 3.7-2

Proposed KNPP Technical Specification Amendment Number 69, with attendant modifications proposed to the routing of offsite power transmission lines, will increase the reliability of offsite power to the Kewaunee Nuclear Power Plant. Presently a single failure could be postulated that would affect 3 of Kewaunee's 4 offsite power sources: Q-303, F-84, and Y-51; R-304 being independent (Attachment 2, Figure 1). Following the proposed modification, and based on the concept of deadend towers, a single failure could not affect more than 2 of the 4 offsite power supplies.

The assumption that a catastrophic transmission line failure will not propagate through a deadend tower is valid since the probability of an offsite power outage[2] has been shown 20 times higher than the probability of a deadend tower failure[3].

KNPP Technical Specifications require two physically independent sources of offsite power be operable to serve the KNPP Substation. Presently three pairs of transmission lines meet this criterion; however, they all have one line in common. This proposed amendment and modification will result in three pairs of physically independent transmission lines that do not all depend on one line for their physical independence.

Following the proposed reroute of line F-84 (Attachment 2, Figure 2) the existing LCO on R-304's operability will be obsolete, and there are no significant hazards associated with removing it from the KNPP Technical Specifications.

Description of Proposed Change Technical Specification 3.7.a.8, Page TS 3.7-1

This revision includes the three pairs of physically independent offsite power transmission lines which serve the KNPP Substation.

Safety Evaluation Technical Specification 3.7.a.8, Page TS 3.7-1

Including the physically independent offsite power transmission lines is an administrative revision that will aid the reader of KNPP Technical Specifications in determining which power supplies are physically independent.

This revision does not affect safety.

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[2]"Loss of Off-Site Power at Nuclear Power Plants - All Years Through 1984," EPRI, April 23, 1985, American Power Conference.

[3]WPSC service data on 345, 138, and 115 KV Deadend Towers

Significant Hazards Determination Technical Specification 3.7.a.8, Page TS3.7-1

This revision serves to identify the 3 pairs of physically independent offsite power sources that are available to serve the KNPP Substation, and is administrative in nature.

This revision poses no Significant Hazard.

As required by 10 CFR 50.91(b)(i), a copy of this application and significant hazards determination is being sent to the Public Service Commission of Wisconsin; in accordance with the provisions of 10 CFR 170, a check for $150.00 is enclosed.

Sincerely,

Carl W. Giesler

Carl W. Giesler
Vice President - Power Production

GWH/jks

cc - Mr. S. A. Varga, US NRC
Mr. Robert Nelson, US NRC
Mr. R. S. Cullen, PSCW

Subscribed and Sworn to
Before Me This 24th Day
of September 1985

Jeanne M. Stein
Notary Public, State of Wisconsin

My Commission Expires:
June 28, 1987