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AUTH.NAME AUTHOR AFFILIATION
MUSOLF,D. Northern States Power Co.
RECIP.NAME RECIPIENT AFFILIATION
Office of Nuclear Reactor Regulation, Director

SUBJECT: Discusses actions taken to improve diesel generator reliability,per Generic Ltr 84-15.Actions concern efforts to reduce numbers of cold fast start surveillance tests & improve reliability & reliability data.

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TITLE: OR Submittal:Fast Cold Starts of Diesel Generators GL-83-41

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Northern States Power Company

414 Nicollet Mall
Minneapolis. Minnesota 55401
Telephone (612) 330-5500

October 1, 1984

Director
Office of Nuclear Reactor Regulation
U S Nuclear Regulatory Commission
Washington, DC 20555

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability (Generic Letter 84-15)

In a letter dated July 2, 1984 from Darrel G Eisenhut, Director Division of Licensing, USNRC, NSP was asked to provide information relating to diesel generator surveillance testing and reliability. The following is in response to that request.

The items covered by this letter fall into the following three areas:

1. Reduction in Number of Cold Fast Start Surveillance Tests for Diesel Generators

   A. Cold Fast Start Testing

      Mr Eisenhut's letter of July 2, 1984 requested that NSP describe the current program to avoid cold fast start surveillance testing of emergency diesel generators.

      In a letter entitled, "Information Related to Fast Cold Starts of Diesel Generation (Generic Letter 83-41)", dated January 10, 1984 from NSP to Director, Office Nuclear Reactor Regulation, USNRC, it was noted that "the engines and the lubricating oil are maintained in a warmed state (130°F), at all times, and that the lubricating oil is continuously circulated to the turbocharger and crankshaft bearings when the engines are at rest". Given these pre-start conditions, cold fast starts as described in Enclosure 1 to Mr Eisenhut's letter of July 2, 1984 do not occur at Monticello.

   B. Other Testing

      1) Auto Start Surveillance with Test Initiation Signal

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Monticello Technical Specifications require that once each operating cycle the diesels be demonstrated ready to accept emergency loads within ten seconds. This test brings the diesel generator from its warm, pre-lubed state to synchronous speed within ten seconds. The frequency of this test is adequate to demonstrate operability while minimizing the possibility of premature engine degradation.

2) Monthly Surveillance Tests

Monticello Technical Specifications require that the diesel generators be manually started and loaded once every month. During this test the diesels are manually started and allowed to idle for at least 10 minutes prior to accepting load. This warm up procedure minimizes engine degradation.

3) Inoperable Diesel or Emergency Core Cooling System Testing

Monticello Technical Specifications require diesel generator testing in the event that a diesel or low pressure emergency core cooling system is declared inoperable. Such testing is performed in the manner described under "Monthly Surveillance Tests".

4) Trouble Shooting/Post Maintenance Testing

Trouble shooting and post maintenance testing is performed to find the cause of the problem and demonstrate operability.

5) Inadvertent Auto Starts

A number of auto starts of emergency diesel generators have occurred at Monticello due to anticipatory start logic. A design change is in progress which will reduce the number of diesel generator initiating signals. This matter is discussed in a letter entitled, "Re-analysis of Adequacy of Station Electric Distribution System Voltage", dated December 30, 1983 from NSP to Director, Office of Nuclear Reactor Regulation, USNRC. A reduction in the number of initiating signals should reduce the number of diesel generator auto starts.

2. Diesel Generator Reliability Data

The reliability of each diesel generator for its last 100 valid tests as defined in Regulatory Guide 1.108 position C.2.e is 1.00. There have been no failures in the last 100 valid tests of each diesel. These tests occurred over a time span of approximately six years.

Records -

Records of demands and failures experienced by each diesel are maintained. However, they are not maintained in the manner outlined in Regulatory Guide 1.108 position C.3.a. A yearly data report is not maintained for each diesel generator's reliability.

3. Diesel Generator Reliability

The Monticello program to maintain diesel generator reliability consists of the following:

A. Surveillance Testing

Surveillance testing as described in section 1.B of this letter is performed.

B. Failure Analysis/Corrective Action

Safety system failures are investigated and resolved in accordance with formal program requirements. This process minimized the possibility of reoccurrence.

C. Preventive Maintenance

Preventive maintenance is routinely performed on the diesel engine/ generator sets and associated support systems.

D. Operating Experience Analysis

USNRC and industry generated reports concerning diesel generator failures and reliability are reviewed. These reviews may result in specific recommendations to prevent a similar occurrence or improve reliability.

Comments on Proposed Reliability Program -

Minimizing the number of diesel starts and total operating hours is an important part of any reliability program. The proposed program provides for accelerated surveillance testing based on historical failure data. If failures are analyzed to determine cause and appropriate actions are taken to prevent reoccurrence, accelerated testing based on failure history serves only to degrade the reliability of the diesel generators.

David Musolf
Manager-Nuclear Support Services

DMM/dab

c: Regional Administrator-III, NRC
NRR Project Manager, NRC
Resident Inspector, NRC
G Charnoff

Attachment

UNITED STATES NUCLEAR REGULATORY COMMISSION

NORTHERN STATES POWER COMPANY

MONTICELLO NUCLEAR GENERATING PLANT

Docket No. 50-263

LETTER DATED OCTOBER 1, 1984
INFORMATION RELATED TO GENERIC LETTER 84-15

Northern States Power Company, a Minnesota corporation, by this letter dated October 1, 1984 hereby submits information related to Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability (Generic Letter 84-15) in response to a letter dated July 2, 1984.

This letter contains no restricted or other defense information.

NORTHERN STATES POWER COMPANY

By David Musolf
David Musolf
Manager - Nuclear Support Services

On this 1st day of October, 1984, before me a notary public in and for said County, personally appeared David Musolf, Manager - Nuclear Support Services, and being first duly sworn acknowledged that he is authorized to execute this document on behalf of Northern States Power Company, that he knows the contents thereof and that to the best of his knowledge, information and belief, the statements made in it are true and that it is not interposed for delay.

Dody A Brose

DODY A. BROSE
NOTARY PUBLIC — MINNESOTA
HENNEPIN COUNTY
My Commission Expires Dec. 26, 1989