

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Report No. 50-336/82-23

Docket No. 50-336

License No. DPR-65 Priority - Category C

Licensee: Northeast Nuclear Energy Company

P.O. Box 270

Hartford, Connecticut 06101

Facility Name: Millstone Nuclear Power Station, Unit 2

Inspection At: Waterford, Connecticut and Berlin Connecticut

Inspection Conducted: October 19 - 21, 1981

Inspectors: P. K. Eapen 11/15/82  
P. K. Eapen, Ph/D., Reactor Inspector date

Approved by: L. H. Bettenhausen 11/17/82  
L. H. Bettenhausen, Ph.D., Acting Chief, date  
Plant Systems Section

Inspection Summary:

Inspection on October 19 - 21, 1982 (Report No. 50-336/82-23)

Areas Inspected: Followup on Loss of DC Power Event experienced on January 2, 1981, and Review of Diesel Generator Trip design and design changes. The inspection involved 14 inspection hours at the site and 10 inspection hours at the corporate offices by one Region-based inspector.

Results: No violations were identified.

## Details

### 1. Persons Contacted

J. Ferraro, Supervisor, Electrical Engineering  
E. Kelenyi, Engineer, Licensing  
\*J. Kelly, Unit 2 Superintendent  
G. Pitman, Manager, Generation Electrical Engineering  
J. Resetar, Senior Engineer  
S. Scace, Operation Supervisor, Unit 2

### NRC

\*T. Shedlosky, Senior Resident Inspector  
\*D. Lipinski, Resident Inspector

The inspector also held discussions with other members of the Power Station and Northeast Utility Service Corporation Technical and Administrative Staff.

\*Denotes those present at the exit interview conducted on site, October 21, 1982.

### 2. Followup on the Loss of DC Bus Event Experienced on January 2, 1981

#### a. References:

- (1) Letter from E. J. Mrocza (NNECo) to J. F. Opeka (NNECo), dated January 20, 1981, Subject: Report on the Reactor Trip of Unit 2 on January 2, 1981
- (2) Letter from E. J. Brunner (NRC-Region I) to W. G. Council (NNECo), dated April 22, 1981, Subject: Combined Inspection 50-245/81-01 and 50-336/81-01
- (3) Letter from R. A. Clark (NRC-NRR) to W. G. Council (NNECo) dated June 16, 1981, Subject: Request for Additional Information
- (4) Memorandum from C. Michelson (NRC) to H. R. Denton (NRC), dated June 17, 1981, Subject: Millstone Unit 2 Loss of 125 VDC Bus Event
- (5) Letter from W. G. Council (NNECo) to R. A. Clark (NRC), dated July 28, 1981, Subject: NNECo's Initial Response to Reference 3 Above
- (6) Letter from W. G. Council (NNECo) to R. A. Clark (NRC), dated October 9, 1981, Subject: Response to Reference 3 Above
- (7) Letter from E. L. Zebroski (Institute of Nuclear Power Operations) to C. Michelson (NRC), dated October 27, 1981, Subject: Partial Loss of DC Power

- (8) Memorandum from C. Michelson (NRC) to H. R. Denton (NRC), dated November 5, 1981, Subject: Millstone Unit 2 - Reactor Trip Following De-energization of A 125 VDC Bus

b. Background

On January 2, 1981, at 0050 hours, Unit 2 reactor tripped while operating at 100 percent power. This event was initiated by a plant equipment operator. He operated the control switch for breaker D0103 and opened the breaker instead of operating the ground detector switch. This de-energized DC bus 201A and removed DC power from all "Facility Z1" equipment. This triggered a series of events. The details of these events are discussed in Reference (1). NRC Region I reported this event in Reference 2. Office for Analysis and Evaluation of Operational Data (AEOD) published its study of this event on June 17, 1981 (Reference 4). In June, 1982, the review responsibility for this licensing action was transferred from NRR to Region I.

The purposes of this inspection were to determine the bases of additional information provided by the licensee in Reference (6) and to assure that recommendations of AEOD were incorporated at the licensed facility.

c. Detailed Review of Licensee's Actions

1. Technical Bases for Licensee's Responses

The inspector reviewed the technical bases for the information provided by licensee on October 9, 1981 (Reference (6)) with the Manager of Generation Electrical Engineering.

Based on the assumptions of the licensee's safety analysis and the licensing bases for the Unit, the inspector concluded that the responses were adequate. However, to obtain concurrence in this matter from the originator of NRC's request for additional information dated June 16, 1981 (Reference (3)), the licensee arranged a conference call with the NRC Safety Assessment Division of Licensing reviewer on October 20, 1982. Based on the clarifications provided by the licensee, the NRR reviewer concurred with the inspector's findings.

The inspector reviewed the status of the modifications discussed in Response to Question No. 1 discussed in Reference (6). These modifications were completed during the 1982 refueling outage.

During the discussions of the bases for the responses for question No. 3 in Reference (6), the licensee's representatives informed the inspector of an ongoing study of the tripping

circuits for the diesel generators. This study includes a comparison of the licensee's tripping circuits with those for other diesel generators supplied by Colt Industries and a review of the tripping criteria against the latest NRC criteria for tripping of diesel generators. If the study supports a modification, the licensee intends to install the required modifications during the next refueling outage.

The inspector and the original NRR reviewer informed the licensee's representatives that the response to question No. 3 (Reference (6)) was adequate. However, Open Item 50-336/81-01-02 discussing the matter in Reference (2) will remain open until the licensee completes this study of tripping circuits.

The inspector has no further questions in this matter.

2. Review of Licensee's Procedures

The inspector reviewed the licensee's procedures to assure that the procedural and administrative concerns stated in Reference (8) were addressed.

Section 2 of Revision 4 of Procedure OP 2519, Electrical Emergency (Loss of Main DC Bus), adequately describes the recovery from a loss of DC bus event, including the effects of re-energization of the lost DC bus. Sections 4 and 5 of this procedure discuss the operator action. This procedure meets the procedural requirement identified under item (1) of Reference (8).

Procedure OP 2503 (Rev. 7) discusses adequately the problems that could be encountered when diesel generators are running in an emergency mode and provides the required operator actions under such circumstances. This is consistent with the measures identified in item (2) of Reference (8).

Procedure OP 2502 (Rev. 12) has a Caution Statement in Section 5.9 to alert the operator of certain pump combinations which will provide inadequate spray flow to the pressurizer. This caution statement meets the intent of the recommendations identified under items (3) and (4) of Reference (8).

Tab 10 of "Mitigating Reactor Core Damage" lesson plan discusses, in detail, the core conditions that produce gases (noncombustibles). This lesson plan is consistent with recommendation identified in item (5) of Reference (8).

Since the Unit has adequately implemented procedure changes and other operator instructions that meet or exceed AEOD's recommendations, the inspector had no further questions in this matter.

3. Exit Interview

The inspector met with the licensee's representatives (denoted in paragraph 1) at the conclusion of the inspection on October 21, 1982, to summarize the inspection findings as detailed in this report. The licensee acknowledged the inspector's statements and written summary.