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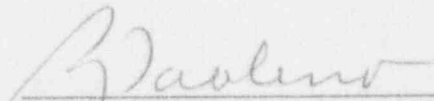
LICENSEE: Vermont Yankee Nuclear Power Corporation
RD 5, Box 169
Ferry Road
Brattleboro, Vermont 05301

FACILITY: Vermont Yankee Nuclear Power Station

INSPECTION AT: Vernon, Vermont

INSPECTION DATES: February 14-18, 1994

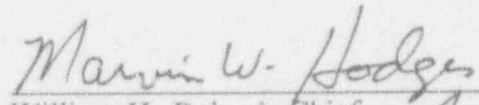
INSPECTOR:



Ralph J. Paolino, Sr. Reactor Engineer
Electrical Section, EB, DRS

3-31-94
Date

APPROVED BY:



William H. Ruland, Chief
Electrical Section, EB, DRS

4-1-94
Date

Areas Inspected: Announced safety inspection of the licensee's current EQ program and its implementation; review and determine acceptability of licensee corrective action for previously identified open items.

Results: VY EQ plan and BMO have been revised to address the NRC concerns pertaining to the voluntary removal of EQ required protective features from service by incorporating the NRC guidelines in this area from Generic Letters 88-07 and 91-18. The EQ plan also provides overall philosophy and identifies departmental responsibilities. The BMO provides specific details as to how EQ should play into the determination of structural/system/component operability.

Corrective action for two previously identified open items was found to be acceptable. These items were closed. The VY technical training program for engineers was modified to include EQ training as a core requirement.

DETAILS

1.0 INTRODUCTION

The purpose of this inspection was to review the current status of the EQ program and determine the effectiveness in controlling removal of EQ equipment from service. In addition, the inspector reviewed and determined the acceptability of VY corrective actions for previously identified open EQ items.

1.1 Background

Previously identified NRC concerns were documented in NRC Inspection Report Nos. 271/90-10 and 271/91-22. One of the issues dealt with the need to question the direct effect of EQ equipment being out of service or degraded as well as the indirect effect on other equipment that may be supported by the EQ equipment. Other issues involved the voluntary removal of the reactor recirculation units (RRUs) and the apparent lack of an appropriate engineering review in the EQ program. The NRC position for the concern was that the decision to remove non-technical specification (TS), important to safety equipment from service should not be predicated solely on an allowed outage time specified in a program document such as the VY EQ program manual.

NRC Inspection Report No. 271/92-21 (Unresolved Item 271/92-21-03) resurfaced the prior NRC question pertaining to voluntary removal from service of the RRUs and questioned the acceptability of VY's position that the RRUs are non-TS versus the need to consider them as necessary supporting equipment for ECCS operability. Also questioned was the acceptability of VY EQ program's established timeframes for resolution of degraded and non-conforming conditions involving operability determinations and timeliness for restoration.

2.0 VY EQ PROGRAM

The VY Environmental Qualification (EQ) Plan, Revision 3, dated October 1993, was established to meet the NRC requirements of 10 CFR 50.49, which requires that "each holder of a ... license to operate a nuclear power plant shall establish a program for qualifying electric equipment ... relied upon to remain functional during and following a design basis event to ensure (i) the integrity of the reactor boundary; (ii) the capability to shutdown the reactor and maintain it in a safe shutdown condition; and (iii) the capability to prevent or mitigate the consequence of accidents that would result in potential off-site exposures comparable to the 10 CFR Part 100 guidelines."

To address the NRC EQ concerns, VY has revised the EQ Plan and the basis for maintaining operations (BMO) manual guidelines. The EQ Plan now provides overall EQ philosophy and identifies departmental responsibilities. The EQ Plan requires a logical and defensible engineering basis to ensure that those components that can impact safety will function as required when called upon. The EQ Plan provides auditable files that substantiate the

identification and basis for qualification of components/systems. An electrical component matrix report is provided for categorizing all electrical components affecting safety functions relative to their environmental requirements for a particular accident. The EQ Plan also includes a master list that clearly defines the equipment that is relied upon when exposed to harsh environments.

Equipment operability determinations were being performed using the VY BMO guidelines, Revision 3, dated October 1993. The BMO provides personnel with management expectations regarding action to be taken when TS, safety related systems and components may be degraded or non-conforming. The BMO endorses this area of the Generic Letters 88-07 and 91-18 which requires action to be taken when EQ equipment is inoperable. Specific actions cited by the procedure include:

- for operable EQ equipment which is covered by TS, the applicable limiting condition for operation (LCO) are to be implemented.
- for inoperable equipment not covered by TS, reactor operation may continue if:
 - safety function can be accomplished by other designated equipment that is qualified; or
 - limited administration controls can be used to ensure the safety function is performed.

Based on the inspectors review of the above documents, the inspector concluded that the actions taken by the license in revising the EQP and the BMO provide clear corporate level direction and establishes organizational responsibilities necessary to implement the VY EQP. The revised documents, when used as directed, also provide adequate controls for removing EQ equipment from service and minimizing time out of service. These corrective actions by the licensee are adequate for closure of Unresolved item No. 271/92-21-03.

3.0 TECHNICAL TRAINING

Training is grouped under three general areas. There is the core training that is required of all engineering personnel at the time of initial employment, position specific training that is related to an individuals assigned job, and elective training that is chosen by the staff and approved by the functional supervisors. As a result of several non-conformances written in 1992, relating to lack of understanding of the EQ program requirements, the licensee committed to provide training to personnel likely to be in a position to affect or allow changes to be made to the facility that could possibly affect the assumptions made in the EQ program. A program was developed by the Yankee Atomic Energy Company (YAEC) that was based on the Electric Power Research Institute (EPRI) EQ training program and customized for VY. Training was held on July 30, August 4, and August 11, 1993. The NRC inspector verified training attendance of personnel from maintenance, electrical

engineering, mechanical engineering, procurement engineers, technical programs and instrumentation and control. Training for all planning engineers is scheduled for April 1994. In addition to training provided to current personnel, the technical staff training program for engineers, maintenance, and I & C have been modified to add EQ training as a core requirement. This will ensure that new personnel receive adequate training on EQ program requirements. The current level of training should ensure that any outage related work receives adequate screening for EQ concerns.

Based on discussions with engineering staff members and supervisors, the inspector found them to be technically knowledgeable and familiar with their areas of responsibility. The training program developed to address the training needs of engineering and the technical staff was comprehensive and appeared affective for engineering assignments.

4.0 SPENT FUEL POOL COOLING PUMPS

During the implementation of engineering design change request (EDCR) 89-408, there was an NRC concern regarding the lack of separation between control switches located on panel 20-22 for the original fuel pool cooling pumps P9-1A & B, that a single event in the panel could impact both diesel generators.

The inspector reviewed VY documentation and the acceptability of the separation configuration noting that a single event in the panel could not degrade both divisions of the power system based on the presence of control circuit fuses and motor control centers (MCCs) circuit breakers feeding pumps P9-1A & B which are shed from the MCCs in the event of loss of normal power (LNP) or LOCA with LNP. In addition, VY memo of February 17, 1994, indicates that EDCR 83-32 upgraded the pumps to safety class, relocated the electrical feeds to safety-related MCCs and provided switches on the Radwaste Panel so that the equipment could be operated from outside of the reactor building. Under EDCR 89-408 the licensee has removed the pumps from the EQ program and installed a fully qualified redundant standby fuel pool cooling system.

The licensee provided a comprehensive, detailed description of the EDCR 83-32 design change that modified the control circuits of the fuel pool cooling pumps.

Based on the above, the licensee's recommendation to include a discussion of the key elements of this evaluation in Appendix A of VY Specification VYS-27 is appropriate.

5.0 STATUS OF PREVIOUSLY IDENTIFIED OPEN ITEMS

(Closed) Unresolved Item No. 271/92-16-01 pertaining to missing fuses in a fire protection circuit. This condition rendered the capability to manually activate the three control room dampers inoperable. However, during the time fuses were missing, mechanical actuation was available through low temperature fusible links that would have isolated the control room

in the event of a fire. Therefore, the dampers were operable. The NRC concerns involve: 1) the adequacy of the fuse control during trouble shooting and maintenance; and 2) adequacy of fire damper activation circuit surveillance testing.

To determine the possible cause of the event VY reviewed maintenance requests and work orders issued since August 31, 1990, and plant design changes completed during the same period. The inspectors review of licensee documents concluded that the licensee was unable to determine whether the fuses were inadvertently removed during trouble shooting or were not actually installed during a plant design change (PDCR 89-03). Of four maintenance requests issued only one (92-05204) identified fuse removal as a preplanned job step. VY identified one potential weakness in the level of documentation provided during the actual work effort relative to planned activity.

Corrective action by the licensee included immediate replacement of the fuses and revision of Procedure AP-3010, Revision 11, to enhance fuse control during trouble shooting and maintenance. Procedure AP-6001 was also revised to include the requirement to record the choice selected where multiple choices exist in an installation & test procedure step. In addition the I & C department developed a periodic surveillance test procedure (completed June 1, 1993) to verify operability of the control room damper manual actuation system (CAR 92034 IC-1).

This item is closed.

6.0 UNRESOLVED ITEMS

Unresolved items are matters about which more information is necessary to ascertain whether an item is acceptable or in violation of NRC requirements or licensee commitments.

7.0 EXIT MEETING

The inspector met with VY representatives at the conclusion of the inspection on February 18, 1994, to discuss the inspection findings. VY representatives did not disagree with the findings as discussed in the report.

ATTACHMENT 1

Persons Contacted

Vermont Yankee Nuclear Power Corporation

- B. Buteau, Engineering Director
- P. Corbett, Manager Electrical Engineering (Acting)
- * J. DeVincentis, Manager Technical Programs
- S. Jefferson, Assistant to Plant Manager
- J. Osmond, EQ Coordinator/Electrical Engineer
- * S. Primavera, Production Supervisor
- R. Wanczyk, Plant Manager

Yankee Atomic Energy Company (YAEC)

- D. Calsyn, QA Supervisor
- S. Palz, QA Engineer

U.S. Nuclear Regulatory Commission

- H. Eichenholz, Senior Resident Inspector

Note: Personnel not identified with an asterisk (*) were present at the exit meeting of February 10, 1994