

**NORTHEAST UTILITIES**

THE CONNECTICUT LIGHT AND POWER COMPANY  
WESTERN MASSACHUSETTS ELECTRIC COMPANY  
HOLYOKE WATER POWER COMPANY  
NORTHEAST UTILITIES SERVICE COMPANY  
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December 21, 1990

Docket No. 50-336  
A09163

Mr. E. C. Wenzinger, Chief  
Projects Branch No. 4  
Division of Reactor Projects  
U. S. Nuclear Regulatory Commission  
Region I  
475 Allendale Road  
King of Prussia, Pennsylvania 19406

Dear Mr. Wenzinger:

Millstone Nuclear Power Station, Unit No. 2  
RI-90-A-0180 and RI-90-A-0202

We have completed our review of an allegation concerning activities at Millstone Unit 2 (RI-90-A-0180 and RI-90-A-0202). As requested in your transmittal letter dated November 26, 1990, our response does not contain any personal privacy, proprietary, or safeguards information. The material contained in this response may be released to the public and placed in the NRC Public Document Room at your discretion. The NRC letter and our response have received controlled and limited distribution on a "need to know" basis during the preparation of this response.

RI-90-A-0180

Issue 1.a.

Wide range nuclear instruments were not operable on October 9, 1990 as required to support refueling operations because:

- 1) "A" channel spikes periodically. This is a long standing problem that has not been resolved, the I&C technicians have "banged on" the channel to stop the spiking.

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#### Background

Millstone Unit No. 2 Technical Specifications require that two of the four wide range flux monitor channels be operable during shutdown and core alterations. On October 9, 1990, wide range channels A, B, and D were operable and being used to satisfy the Technical Specifications requirement. Intermittent spiking of the drawer indication has been a long standing problem. Over the past two years, six AWOs have been implemented to troubleshoot and resolve this problem. Efforts to determine the exact cause in the past have been inconclusive because the spiking is not repeatable on demand. Recent efforts to isolate the fault included interchanging the A drawer into the C cabinet. This has proven successful in isolating the problem to that drawer as opposed to the rest of the channel's components. Current plans for resolving this problem include preparation of a spare drawer to allow one for one replacement and evaluating the need to upgrade the system to one of a design easier to maintain and more resistant to EMI.

#### Response

It is not an acceptable practice to "bang on" electronic equipment to resolve a problem. As the spiking problem with this drawer is an intermittent one, poor electrical connections are a possible cause. Movement of the drawer and the components within it has been attempted in an effort to determine a causal relationship. No repeatable response has been established.

- 2) "C" channel cable has been damaged and this damage has affected readings on the channel. The channel has "low IR" readings on the cable.

#### Response

While replacing the channel "C" cabling, the cable outer conductor was damaged. NCR 290-110 documented this damaged condition and described the repair in the disposition details. Subsequent testing of the cable was performed under AWO M2-90-11450 and showed the repair to be satisfactory and the "IR" to be within the specification limit.

- 3) A PDCR to change out the channels continues to be open and until closed and signed off, the channels cannot be operable.

#### Background

PDCR MP2-90-072 was written to address the replacement of wide range cable pull boxes and junction boxes. The equipment was accepted by Operations on November 2, 1990 after satisfactory retest. The PDCR was closed on November 9, 1990.

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#### Response

The implementation of a PDCR is controlled by a work order (AWO). The activity is authorized by Operations, performed by the appropriate work group, tested, reviewed by the appropriate engineer, and then accepted by Operations. Operations then determines the operability of the system based on the overall system status. The closeout of the PDCR document follows the closeout of the AWO document. Its status, after the AWO is accepted by Operations, does not affect the operability of the system.

#### Issue 1.b.

The I&C technicians have been under pressure to allow the (above) discrepant conditions to continue to exist with the channel considered operable to allow fuel alterations to occur.

#### Response

The intermittent spiking of the "A" wide range drawer has been a frustrating problem for I&C technicians to deal with. During refueling activities, the appropriate conservative action has been taken when a problem such as EMI interference has caused any of the operable channels to be of suspect status. These include Steps 5.5 and 5.6 of Engineering Procedure EN-21008.

During the refueling activities of the 1990 refueling outage, technical specification requirements for flux monitoring were met. No situations associated with the wide range nuclear instruments during core alterations occurred that required specific determination of operability by PORC. Maintenance and surveillance testing was done in accordance with PORC approved procedures. The detector, junction box, and cable replacement activities were accomplished to correct EEQ deficiencies. PORC has reviewed and approved an operability evaluation of the wide range nuclear instrumentation on December 12, 1990, PORC #2-90-192. This evaluation addressed the environmental qualification of the system as required by 10CFR50.49.

#### Issue 2

The "owner" of the wide range nuclear instrument procedure, SP-2417H, was not consulted for a recent procedure change processed to support outage activities. This is contrary to I&C Department policy.

#### Background

ACP-QA-3.02 contains the station requirements for the review and approval of procedures. Procedure revisions are required to be reviewed by the department head and by PORC. Unit 2 I&C has a department specific instruction (3.01) on department procedures to ensure that consistent, high quality procedures result from the department's efforts. Department instruction 3.01 currently includes guidance on the development of revisions. It also discusses the use

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of a routing sheet by the PMMS planner as a means to coordinate revision development. The current routing sheets being issued by the PMMS planner include a flowpath of possible desired reviewers. It is up to the PMMS planner to indicate what scope and the number of reviews necessary for any given revision.

The concept of each procedure having a procedure owner was implemented in 1988 to make the procedure review and revision process more effective and efficient. Previously, procedures were not assigned individual responsibility below the department head level. This concept has proven effective in allowing the procedure owner to be the focal point for resolving issues associated with the procedure.

The refueling outage wide range nuclear instrumentation work activities were assigned primarily to one I&C specialist. This specialist was assigned to dayshift throughout the outage. During the work activity, he found the existing procedure deficient and prepared the necessary revision. The PMMS planner, with the department head's concurrence, deleted the normal practice of having one of the reviews done by the procedure owner. The basis for this change in the normal department practice was the availability of other and better qualified reviewers. The procedure "owner" was on nightshift during this time frame and was involved in other important issues of his own.

#### Response

Revision 3 of IC-24i7H was not reviewed by the procedure "owner". Adequate review in lieu of the procedure "owner" did occur. This issue was raised by the procedure "owner" and was addressed by the department head.

RI-90-A-0202

#### Issue 1

Authorized Work Order M2-90-00579 is a one-page AVO for annual preventive maintenance (PM) on various limit torque operators. A note on the AVO says that the performance of the PM will not affect EEQ boundaries. However, ACP-2.16, Page 21, Item D states that all maintenance work or EEQ examinations be documented on three-page AVOs.

- a. Was the one-page AVO appropriate for this maintenance item? Were there proper EQ reviews?

#### Response

In 1986, Unit 2 Maintenance reviewed PMs involving EEQ equipment in order to determine which PMs did not affect EEQ boundaries. As a result of this evaluation, AVOs for PMs that do not affect EEQ boundaries contain the statement, "NOTE: The performance of this PM will not affect the EEQ boundaries per R. Bonner 3/31/86". Based on a request from Unit 2, a



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letter of clarification to NEO Procedure 2.21 will be issued by the Director of Generation Engineering and Design to clarify that inspections and PMs of EEQ equipment that do not impact any EQ attributes may be performed on non-QA work orders.

- b. Were single page AVOs appropriate in the past to ensure EQ requirements were satisfied? (If a review of single page AVOs is conducted, please discuss the sample size and effort to ensure that the sample is representative).

Response

Unit 2 Maintenance and Unit 2 Engineering conducted a review of all one-page AVOs (152 AVOs) that had been written for EEQ equipment. The result of the review indicated that none of the AVOs were actually used to direct any EEQ activities, and therefore, no challenges to EQ requirements were created by the use of one-page AVOs on the associated equipment.

- c. ACP-QA-2.16 was revised on September 11, 1990 to require that maintenance on EEQ equipment be documented on three-page AVOs (Reference MM-90-214, dated November 5, 1990). Why was this revision required?

Response

The revision to ACP-QA-2.16 was part of the periodic review of procedures. The paragraph specifying the use of QA AVOs was primarily revised to address EQ equipment replacements (Section III.d, paragraph 2). The word changes to paragraph 1 of Section III.d were not meant to change the intent. As stated in the response to Item 1 above, a clarification to this concern will be issued.

- d. Are motor-operated valve cover gaskets replaced or are torque switch settings changed when using single page AVOs? If so, is this satisfactory to ensure EEQ requirements?

Response

As stated in the response to Item 2 above, Unit 2 Maintenance reviewed all one-page AVOs that had been written for EEQ equipment. There were no one-page AVOs written, nor were there any descriptions of actual work performed to change torque switch settings or replace motor-operated valve cover gaskets.

Issue 2

Authorized Work Order AWO M2-90-12648 required electrical re-termination of valve 2-MS-190B.

- a. How and for how long was the termination that needed to be redone incorrect?

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Response

The solenoid valve for 2-MS-190B was inadvertently de-terminated during testing by I&C (AWO M2-90-08571) on August 14, 1990. AWO M2-90-08697 was written to re-terminate the SOV with Raychem on August 15, 1990, and the job was completed on August 17, 1990. The termination was removed for inspection by AWO M2-90-12648 on October 30, 1990 and re-terminated the same day.

- b. Was there a safety impact due to the original deficient termination?

Response

An engineering evaluation of the safety impact was performed by Unit 2 Engineering as part of the response to Plant Incident Report 90-143. There was no safety impact due to the original deficient termination.

- c. What were the circumstances that caused the AWO to be prepared? (i.e., how was the deficiency discovered? What was the cause of the deficiency?)

Response

Based on discussions with the QC inspector and other electricians, a Unit 2 electrician expressed a concern that the termination for 2-MS-190B was not done properly. The electrician discussed his concern with the Unit 2 Maintenance Manager who directed the electrician to inspect the termination and to re-terminate the connection correctly. AWO M2-90-12648 was written to inspect and re-terminate the solenoid connections. The AWO included the re-terminating task because the termination could not be thoroughly inspected without destroying the splice.

- d. Was there a QC hold point or similar review that should have prevented the deficiency in the original termination.

Response

The deficiency with the original termination was that there was unqualified braided material that was covered by the Raychem splice which in turn caused the splice to be unqualified from an EEQ standpoint. An inspection plan with a specific inspection sheet for this type of Raychem splice was included in the AWO for the original termination. The inspection sheet specified under cable preparation that there be, "1. No braided jacket or non-qualified material ...". This attribute was signed off satisfactorily with no open items by a QC inspector.

Additional Discussion of Issue 2

As stated previously, a Unit 2 electrician expressed a concern that the solenoid valve for 2-MS-190B may not have been terminated correctly. Since

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2-MS-190B is on our EQML, the electrician was directed to remove and investigate the existing termination and re-terminate the solenoid valve correctly.

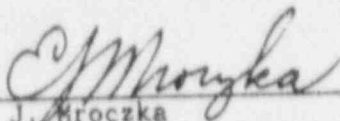
The "as found" termination was inspected by two Unit 2 electricians and a QC inspector. All agreed that the braided material on the solenoid valve leads appeared to be under the Raychem sealing leg of the breakout which is not acceptable for an EQ termination. The termination was removed and replaced.

The termination that was removed was given to a Maintenance engineer for destructive examination. The termination was partially cut open, and it was evident that the braided material had not been removed from the solenoid valve leads. An NCR (290-362) was generated to document the non-conforming termination and the associated rework. A PIR (90-143) was initiated to address reportability of the incident. The PIR was dispositioned as not reportable. The partially opened termination and a copy of the inspection sheet for the original termination were turned over to the Quality Services Department so their involvement with the original termination could be investigated. The Electrical Supervisor had a discussion with the Job Supervisor concerning the problem with the original termination and the importance of following procedures.

After our review and evaluation, we find that none of these issues taken either singularly or collectively present any indication of a compromise of nuclear safety. We appreciate the opportunity to respond and explain the basis for our actions. Please contact members of my staff if there are any further questions on any of these matters.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

  
E. J. Hrocza  
Senior Vice President

cc: W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2, and 3