NORTHEAST UTILITIES

THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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August 16, 1991

Docket No. 50-336
A09658

Re: Employee Concerns

Mr. Charles W. Hehl, Director
Division of Reactor Projects
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, Pennsylvania 19406

Dear Mr. Hehl:

Millstone Nuclear Power Station, Unit No. 2
RI-91-A-0137

We have completed our review of the identified issues concerning activities at Millstone Station. As requested in your transmittal letter, 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.

ISSUE 1:

On June 3, 1991, an electrician was assigned to disconnect a solenoid valve in work documented by Work Order M2-91-03642. In preparation, two pumps were tagged, fuses in Panel C85 were pulled and tagged, but power to the solenoid was not tagged. The tagging was therefore insufficient and a personnel safety hazard existed.

Response:

The diaphragm in the operator for 2-BAE-26 had ruptured and was to be replaced. Electricians were required to disconnect the valve electrically. In order to accomplish this, the solenoid valve lead wires were disconnected and the limit switches were moved out of the way. Fuse FU200C was tagged pulled which de-energized the solenoid valve; power to the limit switches was not isolated. In order to move the limit switches, they were unbolted from their mounting and physically moved aside and tied off. Moving the limit switches was a mechanical task which did not require exposing any portion of the electrical components. It was not necessary to isolate the power to the limit switches to safely complete this work. However, the Job Supervisor judged that the limit switches should have been

tagged before they were moved and, in accordance with ACP-QA-2.06 "Station Tagging," requested Operations to tag the limit switch power supply. Operations tagged breaker VR1115 and the job was completed.

The tagging was adequate without de-energizing the limit switches, however, the Job Supervisor always has the option to request additional tagging, if he judges it appropriate. It is the Job Supervisor's responsibility to ensure that tagging at the work site represents a safe condition. This was appropriately done by the Job Supervisor in the conduct of this work. Based upon the above, NNECO concludes that no personnel safety hazard existed.

ISSUE 2:

On May 31, 1991, during a preventive maintenance task on the "B" EHC motor (P81B), it was discovered that a component tagout was incomplete. Work Order M2-90-04610 specified that safety tags be placed at the motor heaters and at the breaker on the MCC which supplies power to the heaters. However, Operations did not tag the heaters and a personnel safety hazard existed.

Response:

The Automated Work Order (AWO) required the annual motor breaker Preventative Maintenance (PM) to be performed on the EHC pump motor. The motor PM involves an insulation resistance check, and visual inspections of connections at the connection box, cleanliness of the motor, and the condition of the ground leads. The only item that would involve the motor heater is inspection of the connections at the connection box. The connections are inspected to ensure that they are tight and the insulation is not charred.

The heater breaker was identified on the work order but there were no requirements specified to tag the breaker. Blue tags were requested for the motor breaker.

The motor heaters are not required to be de-energized and tagged to perform the motor breaker PMs. In this case, the motor breaker PMs were performed safely using the proper safety equipment without tagging the motor heaters.

All electricians have been trained to check for voltage potential before touching any connections. If a low voltage circuit, such as a motor heater or portion of a control circuit, is energized, the Job Supervisor has the following options to ensure that the job is done safely:

- Return the AWO to the Control Room and request Operations to provide additional tagging to isolate the circuits.
- Using proper safety equipment, such as low voltage gloves and safety glasses, complete the inspection with the motor heaters energized.

Based upon the above, NNECO concludes that no personnel safety hazard existed.

ISSUE 3:

On June 3, 1991, during preventive maintenance on the "A" acid feed pump motor in the Condensate Polishing Facility, it was discovered that the component tagout was incorrect and a personnel safety hazard existed. The Work Order M2-90-05941 was assigned tag clearance 2-1107-91 (see page 1 of the AWO, blocks 1 and 4 of tag clearance sheet SF 210C); however, the blue tag was placed on MCC1B1-3K which is the breaker that controls 2CND-P11B. When P11A was checked, red tags were found on the breaker, recirculation valve, and pump discharge valve using tag clearance 2-1116-91 per Work Order M2-91-05675.

Response:

The operator creating the clearance made an error. He inadvertently identified the breaker for the "B" pump on the tagout. The Job Supervisor detected the error and it was corrected. This second verification of safety tagging prevented a potential personnel safety hazard from being created. The operator has been counseled on this error.

ISSUE 4:

On June 7, 1991, inadequate tagging was identified during Work Order M2-91-05870. The specific work for which the tagging was incomplete involved adjusting the limit switch for the closed valve position on the "D" Condensate Demineralizer inlet isolation motor operated valve (2-CND-170 or MOV23D). The only electrical tag in place was on the breaker for 2-CND-23D. Operations' records and the P&ID show that additional electrical tags are required at the outlet valve breaker (2-CND-192 or MOV-37D) as it is interlocked with the inlet valve, at the demineralizer inlet isolation solenoid bypass valve (2-CND-171 or SOV 221D), and at the limit switch fuses in Cubicle 1.

Response:

The P&ID indicates that there may be an interlock between the valves. Additional investigation is required into the electrical circuits involved. Corrective action will be taken when the investigation is complete. This is expected to be completed by September 15, 1991. A follow-up response will be provided at that time.

ISSUE 5:

On June 10, 1991, inadequate tagging and a personnel safety hazard was identified during a motor breaker PM (AWO M2-90-06240) performed on a non-vital chiller (X 196B). It was discovered that the non-vital chiller was energized by the compressor sequencer and the unloader valves.

Response:

The AWO required the annual motor breaker PMs to be performed on the 'B' Turbine Room chiller. This chiller is paired with another chiller and both are controlled through a single sequencer unit which also provides the power for the solenoid valves associated with each chiller. In order to

completely isolate either chiller electrically, both units would have to be shut down, which is not practical due to operating requirements. Therefore, the sequencer remained energized and the PMs to the motor and breaker were completed safely without additional tagging. A caution note has been added to future AWOs associated with these units to indicate that multiple power sources exist for this circuit. We do not consider this work evolution as creating a safety hazard.

ISSUE 6:

On June 14, 1991, during work on 4160 volt bus 24A, there was incomplete tagging and extremely dangerous personnel safety condition regarding incomplete tagging and non-conformance with procedures. The work involved removing workman grounds from A107, A103, and A104 on the "A" bus and from A504 on the "C" bus. The procedures to install and remove workman grounds were not in the work order. The workman grounds on A304 had been removed with no notation in the AWO and no signature on MP2720C5. Operations informed Electrical Maintenance that grounds were to remain on A102 as it would be part of the 24B tagout but no notation of this action was in the AWO. The AWO was signed as complete even though the grounds were being removed from A103 and A104; blue tags existed on the elevator mechanisms; breakers A304A, A102, A103, A104 were removed from the cubicles with red tags attached to A304, and no tags on the others; and no record existed of workman grounds being removed from A304. Additional deficiencies include: there was no copy of MP2720C6 (metal clad switchgear maintenance) in the work folder as required before the start of work and before department approval; the material accountability sheets were not in the AWO package, the retest was signed off before the grounds were removed and the bus energized; the DC control power was not tagged during the performance of work on the bus; and a red tag on A304 was removed without proper authorization.

Additionally, a programmatic problem with tagging has been identified for work on the 24A bus. Breaker A304 (tie from 24A to 24C) is physically removed from the cabinet and red tagged. Workman grounds are hung on the load side and a blue tag is on the elevator mechanism. The RSST side of A304 remains hot even with the breaker removed. Therefore, both blue and red tags are being used in the same circuit. If a wrong breaker is installed and closed or a ground cart with the stabs in the wrong position is racked into A304, the hot side of the RSST would be grounded. The supposed ground cart scenario occurred at Unit 2 in the past. Similar but not exactly the same problem exists with breakers A104 and A102 when the breakers are removed and no tags are hung on the breakers.

Response:

This issue has been identified to us via internal correspondence from one of our employees. We have responded to the employee and continue to address the issue with him. AWO M2-90-09797 was prepared to perform inspections on 4160V bus 24A. Tagging was required and a recommended tagging list was included with the AWO. The tagging and grounding, including the tagging of the control power and elevator mechanisms, were reviewed by Operations, the Job Supervisor and Maintenance Supervisor and were determined to be safe. As in all the cases where tagging is required,

placement of tags, and in this case grounds, is a prerequisite for Operations to authorize commencement of work, which is consistent with ACP-QA-2.02C.

The work was completed and the AWO was returned to Operations. Removing grounds is a task that Millstone Unit No. 2 Electricians perform under the direction of Operations to assist Operations in the removal of tags. In order to clear tags, Operations requires that all work packages associated with a specific Tag Clearance be in their possession. This procedure is consistent with ACP-QA-2.06A and was followed in the removal of tagging for the 24A bus. Documents required to support the removal of grounds and associated tagging are:

1. All AWOs on the Tagging Clearance must be in Operations' possession. AWO M2-90-09797 was the only AWO listed on the Tagging Sheet and it was in the possession of Operations. The AWO was not required to be at the job site to remove tags/grounds.

2. Tagging Sheets relating to the Tag Clearance for which tags/grounds are being removed are required to be at the job site with the operator who is removing the tags.

3. If Millstone Unit No. 2 Electricians are removing the grounds, Maintenance Procedure MP 2720C5 for each of the breakers for which grounds are to be removed must be at the job site.

After the work was complete and, in accordance with ACP-QA-2.02C, the procedure (MP 2720C6) and accountability log associated with the work was included in the work package for historical information.

After the AWO was returned to Operations, the tags associated with breaker A304 were changed, in accordance with ACP-QA-2.06A, to facilitate testing by Generation Test under AWO M2-91-06047. After Generation Test completed the Doble testing of the 24A bus, AWO M2-91-06047 was returned to Operations and the tags associated with that work order were cleared. At this time, the A304 breaker should have been returned to its cubicle and the 'Red' tag transferred from the breaker to the elevator mechanism.

The Tagout Sheet clearly indicated that the grounds for breaker A304 had been removed and tags for the grounds cleared. The Job Supervisor stated that the cover panels to breaker A304 were removed just to be sure that the grounds were removed as indicated on the tag sheets. The other grounds associated with the 24A bus were all located such that the associated breaker was between the bus and the grounds. Therefore, the 24A bus was isolated but not grounded. Since Operations held the work orders for the 24A bus and associated breakers, no work was authorized. If an individual violated the procedures and racked in and closed a breaker into the A304 cubicle, the 24A bus would become energized, but there would be no short to ground. The procedure for removing grounds is written assuming the associated bus is energized. Removing grounds from breakers A103 and A104 in accordance with Maintenance Procedure MP 2720C5 was safe regardless of whether the 24A bus was energized or not.

ISSUE 7:

On June 14, 1991, while performing preventive maintenance on SG1 MSIV bypass valve, 2-MS-65A motor operator (Work Order M2-90-13990) a tagout deficiency related to tag clearance 2-1093-91 was identified. The clearance authorized only one safety tag (B5207) although power was being fed from ESAS panel RC02B for an MSI signal and from C01X and C06X for 43X relay for MSI override. None of these lines were safety tagged and a personnel safety hazard existed.

Response:

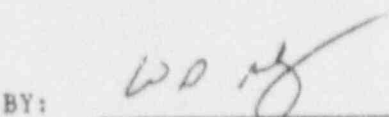
AWO M2-90-13990 was prepared to replace damaged seal tite on 2-MS-65A. Upon inspection it was revealed that the seal tite contained no wires. Tagging the 480V breaker prevented the valve from operating, and since there were no additional wiring involved, the tagging was adequate.

After our review and evaluation, we find that these issues did not present any indication of a compromise of nuclear safety. Industrial safety issues identified in these concerns have been adequately addressed by current plant procedures and safety manual requirements. We continue to strive for higher performance in safety tagging. In the case of Issue 3, an error was clearly made and identified by the job leader. This is an example of the value in having the person responsible for the safe completion of a job verify safety tagging before the job is started. We appreciate the opportunity to respond and explain the basis of our actions. Please contact my staff if there are any further questions on any of these matters.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

FOR: E. J. Mroczka
Senior Vice President

BY: 

W. D. Romberg
Vice President

cc: W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2, and 3
E. C. Wenzinger, Chief, Projects Branch No. 4, Division of Reactor Projects
E. M. Kelly, Chief, Reactor Projects Section 4A