

# NORTHEAST UTILITIES



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

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May 6, 1991

Docket No. 50-336  
A09449

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

50-336

Dear Mr. Wenzinger:

Millstone Nuclear Power Station, Unit No. 2  
RI-91-A-0010

We have completed our review of the identified issues concerning activities at Millstone Unit No. 2 (RI-91-A-0010). 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

Some of the steam generator manway studs are from the training mock-up. There were no quality controls in place at the mock-up and the studs are not suitable to use on the steam generator manways. A nonconformance report (NCR) was written concerning use of the studs, but the work order was closed prior to disposition of the NCR. The sequence of events is prohibited by administrative control procedures.

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Please discuss the validity of the above assertions. If an NCR was written, please provide a copy of the NCR for our review. If any procedural requirements were violated, please discuss your corrective actions and the significance to safety of the violation(s).

#### Response

During the January 1991 steam generator (S/G) manway leak out, a total of 26 manway studs had to be replaced. Since only 20 spare studs were stocked in the warehouse, six primary manway studs were taken from the S/G manway mock-up. All of the studs taken from the mock-up were installed on the No. 1 hotleg manway under AWO M2-90-16146.

The studs taken from the mock-up were actual manway studs procured as QA Category 1 components for use on the S/G steam generators. At receipt inspection, the QA studs were engraved with a Millstone Point Serial Number (MPSN) to provide traceability to the Material Receipt Inspection Report (MRIR).

While installed in the mock-up, the studs were not subjected to QA material controls. However, traceability was re-established using the MPSN which provides material identification.

NCR 291-008 was originated by Millstone Unit No. 2 Maintenance on January 4, 1991 to evaluate the adequacy of the mock-up studs. Based on the technical evaluation, the NCR was dispositioned "Use-As-Is" and approved by the Unit Director on January 5, 1991.

A preservice examination of the studs required by the ASME code was performed on January 4, 1991. The studs were installed, and the S/G manway was tensioned on January 5, 1991. The AWO, which included a copy of the approved NCR, was returned to Operations on January 5, 1991. The manway was leak tested on January 8, 1991, and the AWO was closed on January 9, 1991.

Contrary to the assertion, the work order was not closed prior to the disposition of the NCR.

The assertion states that "the sequence of events is prohibited by administrative control procedures."

Based on a review of applicable procedures, ACP-QA-2.02C, "Work Orders", and ACP-QA-5.01, "Nonconforming Materials and Parts", there were no procedural violations associated with AWO M2-90-16146 nor NCR 291-008.

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ACP-QA-5.01 includes a flowchart for nonconformance reports. The required sequence and actual sequence followed in processing NCR 291-008 are shown in the following table. Step Number refers to NCR "block" number.

| <u>Step Number</u> | <u>Required Action</u>                   | <u>Actual Action</u>  |
|--------------------|--|---|
| 1                  | Originator identifies nonconformance     | NCR initiated on January 4, 1991  |
| 2                  | QSD logs NCR                             | Logged in and NCR number assigned January 4, 1991   |
| 3                  | Engineering reviews and dispositions NCR | NCR dispositioned by engineer on January 4, 1991, approved by supervisor on January 5, 1991 |
| 4                  | Unit Director review and approval        | Approved by Unit Director on January 5, 1991  |
| 5                  | NCR implemented                          | NCR dispositioned "Use-As-Is"; no disposition action/implementation required                |
| 6                  | QSD Verification/Review                  | NCR closed by QSD on January 8, 1991  |

It is noted that ACP-QA-5.01 does not include any procedural requirements to sequence NCR process with the AWO work control process.

Requirements of ACP-QA-2.02C, "Work Orders", associated with the NCR and work order processes are shown below. All of the applicable requirements pertaining to nonconformance reports were satisfied. ACP-QA-2.02C requires:

1. An NCR be initiated when nonconforming conditions or events are encountered. (The NCR was initiated on January 4, 1991 when it was determined that the mock-up studs are needed.)
2. Hold points be established for QSD verification of work which implements NCR dispositions. (Since NCR 291-008 was dispositioned "Use-As-Is", no QSD hold points/verification was required.)
3. NCR implementation dates be recorded on work orders prior to close-out. (The NCR approval date of January 5, 1991 was entered on the AWO prior to returning the work package to Operations.)

A copy of NCR 291-008 is provided as Attachment 1 to this letter.

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## Issue 2

During a recent performance of SP-2402P, it was identified that the bistable for low steam generator pressure on the reactor protection block does not function properly. A modification is underway to correct drift adjustment. A number of other problems with the bistable have been identified but no corrective actions have been taken.

Please discuss the validity of the above assertions. If problems with an RPS bistable have been identified, please discuss the operability of that channel of the RPS. Please discuss why identified discrepant conditions, if any, associated with the RPS have not been addressed by management.

## Background

The low steam generator pressure trip block is manually initiated and automatically removed by a bistable located in the auxiliary logic drawer of the RPS. The bistables currently have two design functions. One is to allow the block of the low S/G pressure trip when S/G pressure is less than 780 psia. This allows the RPS breakers to be closed with the plant in a cold shutdown condition. This design feature was originally intended to support low power physics testing. The second design feature is to automatically remove the block when pressure is raised above 780 psia.

Since Millstone Unit No. 2 is restricted by technical specifications to not allow criticality with RCS temperature below 515°F, the automatic removal of the block design feature is not relied upon. Technical specifications prohibit energizing Control Element Drive Mechanisms in Modes 3 (below 500°F), 4, 5, and 6 unless RCS boron concentration is at least refuel concentration levels. The block function has been used to accomplish control element drive system cold rod checks prior to reactor operation when the RCS boron concentration is at refuel levels. During the cold rod check activity, Technical Specification 3.1.3.7 is complied with and RCS boron concentration is maintained at refuel levels. At the completion of the testing, the block switches are restored to normal position. The technical specifications require that for the reactor to be taken critical, the RCS temperature must be greater than 515°F. This results in a S/G pressure of 780 psia. No other plant operation evolutions require the use of the block keys. Current low power physics tests do not involve operation of the block feature. As reactor criticality is not allowed with the trip blocked, the design feature of its automatic removal is never relied upon. Due to these restrictions in the current operation of Millstone Unit No. 2, the block removal setpoint drift noted to date is not considered a discrepancy of any safety significance.

The sensitivity of the bistable installed in RPS channel A was first identified in 1986. The bistable was monitored for drift until it was replaced in May 1987. The condition of the bistable was monitored with increased awareness over the next two years. Troubleshooting was accomplished in 1988 - 1989 in order to try to determine the cause of the

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sensitivity. The results of the investigation concluded that the components on the bistable circuit card were causing the increased sensitivity and subsequent drifting due to age. New circuit cards were ordered as replacements and have not been received due to difficulty with finding replacements for obsolete parts. An upgraded design of the circuit card is being pursued using currently available components. Monitoring of the bistable condition will continue until it can be replaced.

#### Response

The bistable continues to perform its function satisfactorily despite its sensitivity. A review of Instrument Calibration Reviews (ICRs) written since 1987 indicates that there were four occasions when the bistable "as found" condition was outside of acceptance criteria in the high direction. Each time this was documented by procedure (ICR) and the bistable adjusted back within tolerance prior to returning that channel to operable status. There were no instances where more than one channel of the RPS was affected at any one time. There are no other problems with the bistable that have been identified to date. The condition is being properly addressed by management at a priority commensurate with its safety significance.

#### Issue 3

Work order M2-90-15362, used to upgrade the flow indication of the containment radiation monitor, RM-8123, was authorized and worked without a tagout.

Please discuss the validity of the above assertion. Was there an administrative requirement to have a tagout in place to perform the work, and why was this requirement not followed? Please discuss any generic implications.

#### Background

A correction to the equipment "ID" as recorded on this issue is needed, as the referenced work order M2-90-15362 was written to implement PDCE MP2-90-032 to upgrade the flow switch associated with RM-8262 and not RM-8123. The following information is developed based on the work order M2-90-15362 (RM-8262) and not on the equipment ID supplied. The work order used to accomplish the flow switch upgrade on RM-8123 is M2-90-07692.

A copy of completed work order M2-90-15362 was reviewed. This review yielded the following facts:

- ° The tagging block had been changed from "N" to YES.
- ° The department approval date was January 5, 1991.
- ° Operations pre-approval signature, time of 0948 and date: January 11, 1991.
- ° Tag clearance number recorded: 2-81A-91 with an Operations approval time of 1345 and date: January 11, 1991.

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Review of the Tag Log Sheet indicates the tags were hung on January 14, 1991, and the "Tagging Verified By" block on Page 2 of the work order was initialed by the responsible individual on January 14, 1991. In addition, a copy of work order M2-90-07692 (RM-8123) was reviewed and verified to have a tagging sheet attached, along with subsequent job supervisor verification initials.

With a flow switch upgrade of this type, there is preliminary work that can be done prior to actually requiring the equipment to be tagged out of service. Tagging then would be requested to support the safe performance of the installation activity as it becomes necessary. This confines the downtime of equipment to what is actually required to perform the task in a safe and efficient manner.

Response

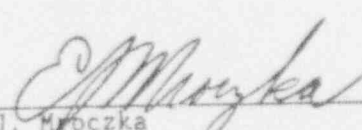
In the case of the RM-8262 flow switch upgrade, preliminary work was accomplished. At a time the assigned Instrument Specialist deemed necessary, tagging was requested, provided, and verified to be satisfactory. The remaining work was then accomplished and the work order completed and signed off on January 18, 1991.

The work order was authorized with an initial tagging designation of "NO". Once the preliminary work was accomplished, the installation activity was then performed using tagging. As indicated in ACP-QA-2.06A, Rev. 18, "Station Tagging", the job supervisor is responsible to request additional switching and tagging if the tagging in place is felt to be inadequate. There was no indication that a problem existed with the tagging or that at any time the work environment was considered to be unsafe. All work was accomplished in accordance with approved procedures and no generic implication exists.

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 my staff if there are any further questions on any of these matters.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

  
E. J. Mroczka

Senior 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



Docket No. 50-336  
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ATTACHMENT NO. 1

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2  
RI-91-A-0010  
NCR 291-008

May 1991

# NONCONFORMANCE REPORT

Page 1 of 3

OP5589 REV. 11-89

SEE NEO 3.06 FOR INSTRUCTIONS

SUBJECT

S/G # 1 Primary Manway Hot Leg  
Stud Replacement

UNIT

2

NUMBER

291-008

COMPONENT LOCATION

CONTAINMENT

SYSTEM

MAIN STEAM

MFR/VENDOR

CE

SOURCE DOCUMENT

SOURCE DOCUMENT

M2-90-16146

DESCRIPTION OF NONCONFORMANCE/CAUSE

- 1 Eight primary manway studs, utilized in the S/G manway mock-up, are required for installation in the # 1 S/G hot leg primary manway.

ORIGINATOR

R. L. BEAL

DATE

1/4/90

QSD REPRESENTATIVE

2 *William A. Sauer*

DATE

1/4/91

DISPOSITION

☒ USE-AS-IS ☐ REPAIR ☐ INSTALL N.C. MATL. ☐ REWORK ☐ RETURN ☐ SCRAP ☐ ADMIN. ☐ OTHER

DISPOSITION DETAILS

SEE ATTACHED DISPOSITION

3

ENGINEER

DATE

1/4/91

SUPERVISOR

*John R. J.*

DATE

1/5/91

UNIT SUPT. /NUSCO ENGINEERING SUPT.

DATE

1/5/91

6SH EVALUATION REQUIRED?

☒ YES ☒ NO

SUPERVISOR

NA

DATE

AWO

NA

REMARKS: INSPECTION/VERIFICATION

☐ SAT. ☐ UNSAT. ☒ N/A

6

Review of Disposition

NGR REVIEWED & CLOSED

*William A. Sauer*

DATE

1/8/91

ORIGINAL TO NUCLEAR RECORDS

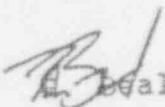
COPY: TO QSD



NCR 291-008  
Disposition

This NCR concerns use of eight steam generator mock-up studs for use in the #1 SG HL manways. These studs were required due to the lack of available replacement bolt material. Six of the eight studs were receipt inspected under MRIR 283-102-1 and the remaining two under MRIR 289-209-1. The studs were subsequently released for use in the steam generator manway mock-up assembly.

The use of the bolting for mock-up training of the steam generator manway tensioner has not adversely impacted bolt quality or fatigue loading. Steam generator mock-up training and primary manway tensioning utilizes the same hydraulic skid. Pump pressure of 20,000 psig is limited by the relief valve setting and the existing tensioning procedure. Therefore, loading of the studs is bounded by the tensioner design evaluation (NUSCO calculation 83-031-254GP rev 0 and 1). In the unlikely event, the mock-up studs were tensioned to the maximum pump pressure of 25,000 psig, the resultant stud stress would be 66 ksi. This value is below the yield stress of 130 ksi for the bolting material. Prior to installation in the Steam Generator Manway, the bolts were visually examined in accordance with Examination Procedure NU-VT-1. This inspection meets the requirements of preservice examination of ASME class 1 bolting and precludes bolt damage prior to installation. A ASME section XI repair replacement plan will be generated for the bolting installation. As a result, this NCR shall be dispositioned as "use-as-is".

Prepared by:  L. Beal 1/4/91  
Approved by:

SUBJECT NCR 291-008 BY R. REAL DATE 1/5/91  
Manway Bolting CHKD. BY \_\_\_\_\_ DATE \_\_\_\_\_  
Stress at 25 ksi CALC. NO. \_\_\_\_\_ REV. \_\_\_\_\_  
 SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_

Calculate stud stress for a hydraulic pressure of 25 ksi.

$$P = \frac{F_{min} \cdot K}{A}$$

From tensioner manual  $K = 1.3$   
 $A = 3.92$

$F_{min}$  = Residual bolt load

$F$  = Bolt load during tensioning

$$F = PA = 25,000(3.92)$$

$$F = 98,000 \#$$

Bolt Stress Area (Tensik) = 1.492 in<sup>2</sup>  
 For 1 1/2" - 8A-2A Stud.

$$\sigma = \frac{98,000}{1.492} = 65683 \text{ PSI}$$

$\therefore 66 \text{ ksi} < \text{yield } 130 \text{ ksi}$

# NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY  
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May 6, 1991

Docket No. 50-336  
A09453

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-0033

We have completed our review of identified issues concerning activities at Millstone Unit No. 2 (RI-91-A-0033). 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

There are no backup flow indicator instruments for the 10CFR50 Appendix R storage locker. When the instruments are removed for calibration (under EN 2.199), there are no controls in place to locate or otherwise provide instrumentation, if needed. There is no RBCCW total flow instrument, no gauge, no backup. Additionally, there are no procedures in place to install the instruments if required by AOP 2579AA. (This issue was provided to Mr. J. Keenan (Millstone Unit 2) on February 1, 1991 in a telephone conference with Mr. D. Haverkamp (NRC)).

Please discuss the validity of the assertions. Please discuss the availability and controls in place to install the flow indicators if needed, including occasions when the instruments are removed from the storage locker for calibration.

1. This statement was not included in the original letter received from the NRC but was revised by the NRC during subsequent telephone conversations.

9303040243

*Pachay deye*  
3/11

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Item 1

There are no backup flow indicator instruments for the 10CFR50 Appendix R storage locker when the instruments are removed for calibration (under EN 21199) and there are no controls in place to locate or otherwise provide instrumentation if needed.

Response

EN 21199 does not exist; however, EN 21199A, Rev. 0, effective July 8, 1987 does exist. The flow indicators which consist of ITT Barton gauges are an enhancement to the Appendix R program and are not required to be installed to meet the requirements of Appendix R.

The Appendix R program depends on the manual alignment of pump discharge valves to preclude the possibility of pump runout or loss of suction pressure. The operators agreed with this operating philosophy, however, they asked if gauges could be installed to verify flow and pressure. Millstone Unit No. 2 Engineering agreed and the operating procedure AOP 2579AA was revised to install the gauges in place of the existing transmitters which the fire destroyed. The Appendix R storage locker inventory surveillance was revised to add the local gauges. The gauges in question would not be installed until backfeed power was established which would be four hours into the fire, therefore, accessibility into the area where the gauges are to be installed is not a concern.

The Appendix R storage cage and the Hot Shutdown storage locker which are each located in a different fire area and are not affected by the same fire have duplicate sets of gauges which can be used.

In summary, the gauges in question are not required for an Appendix R fire and are not taken credit for in the Appendix R analysis. They were added to the operating procedure and stocked in the Appendix R storage locker as an enhancement for operations. Therefore, the removal of the gauges for calibration has no affect on the Appendix R program.

Item 2

There is no RBCCW flow instrument, no gauge, nor backup.

Response

The Millstone Unit No. 2 Appendix R safe shutdown analysis does not require the availability of RBCCW flow instrumentation to achieve shutdown after a fire. Manual repositioning of RBCCW valves will assure proper system alignment and acceptable flow rates. NNECO Operations recently requested that the option to install a local RBCCW flow gauge be provided to enhance the post-fire shutdown process. The Appendix R procedures will be updated to reflect the installation of the gauges and two new gauges will be added to the Appendix R storage locker. Two additional gauges will also be added to the Hot Shutdown Panel storage locker for the RBCCW system.

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Item 3

There are no procedures in place to install the instruments if required by AOP 2579AA.

Response

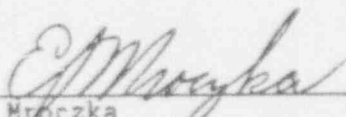
The Appendix R procedure AOP 2579AA directs the installation of pressure and flow gauges in various locations in the plant to enhance the operators ability to verify flow and pump discharge pressures. The gauges would be installed after backfeed power is established which is four hours into the fire. Due to the fire, the control room would be evacuated which would activate the emergency plan calling all on-call personnel to report to their assigned areas. Instrumentation and Control personnel would be part of the reporting team which would be directed to install the associated gauges.

The installation of the local instrumentation gauges is well within the capabilities of an Instrumentation and Control technician. A procedure for this task is not warranted.

After our review and evaluation, we find that none of these items 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 my staff if there are any further questions on any of these matters.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

  
\_\_\_\_\_  
E. J. Mroczka  
Senior 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