

0232

NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS LIGHTING COMPANY
HARTFORD WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

General Offices • Seiden Street, Berlin, Connecticut

P.O. BOX 270
HARTFORD, CONNECTICUT 06141-0270
(203) 665-5000

December 19, 1991

Docket No. 50-336
A09664

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, PA 19406

Dear Mr. Hehl:

Millstone Nuclear Power Station, Unit No. 2
RI-91-A-0232 and RI-91-A-0263

We have completed our review of identified issues concerning activities at Millstone Unit No. 2. As requested in your transmittal letter of October 29, 1991, our responses do not contain any personal privacy, proprietary, or safeguards information. The material contained in these responses may be released to the public and placed in the NRC Public Document Room at your discretion. The NRC transmittal letter and our responses have received controlled and limited distribution on a "need-to-know" basis during the preparation of these responses. The responses to these issues were originally due on December 4, 1991. An additional two weeks in which to respond were granted in a telephone conversation with the Region I Staff on December 2, 1991.

ISSUE A-0232-01/A-0263-01:

"There were two examples of alleged inadequate control and maintenance of equipment spare parts. First, that a spare power supply in the warehouse (SPM 798, revision 16, item 34) for the 'B' RCP [reactor coolant pump] lower oil reservoir level alarm unit allegedly did not receive a capacitor change out, as did the in-service power supply units. Allegedly, PMMS [Production Maintenance Management System] item M2-02-ENV-PWR-X-20 (Serial No. 10521) typified a maintenance history record for a power supply replacement. Second, that an RPS [reactor pressure system] spare component, the Auxiliary Logic Drawer identified in Concern RI-91-A-0263-02, allegedly lacked a modification (three versus four amber indicating lamps)."

REQUEST:

"Please provide your review of the above assertions. If the above conditions are valid, notify us of the corrective actions you have taken to prevent

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recurrence. Also provide us with an assessment of the safety significance of any identified deficiencies, including generic considerations."

RESPONSE:

The assertion is partially valid. During the 1989 refueling outage a decision was made to change out the electrolytic capacitors in the GEMAC Model 570 power supply assemblies, including the spare power supply assemblies stored in the warehouse. The decision to change out capacitors was a preventive maintenance action based upon the length of time these power supply assemblies had been in service. As the result of an oversight on our part, the circuit board at issue, and two other circuit boards which were also not contained in the spare power supplies, were not changed out.

The auxiliary logic drawer at issue was not intended for use as a spare, and therefore did not require modification as asserted. This is discussed further in response to issue 0263-02 below.

Background:

As part of troubleshooting and maintenance activities, the individual involved is trained to check the equipment being installed against the equipment it is to replace and resolve any differences in configuration. Equipment is tested and proven completely functional before it is placed in service. This evaluation and testing process functioned as desired. The circuit board did not have the same capacitor installed as the board it was to replace. Investigation of the difference between cards revealed that the in-service units had had their capacitors changed out. Based on the results of the investigation, the capacitor was changed out on the card before it was tested and installed. We were informed of the capacitor concern after the spare power supply at issue had been modified by installation of the proper capacitor and the power supply card successfully tested and installed in troubleshooting the alarm.

When we were initially informed of the capacitor concern by the individual performing the work on the power supply assembly, all warehouse spare circuit boards (a total of two) with the old-style capacitors were subsequently tested and found to operate properly.

Use of the old-style spare part would not have resulted in failure of the power supply. While the assertion that the spare circuit boards did not receive a capacitor change out is correct, it has no safety significance in that the equipment would have operated normally, as shown by our testing, had the card at issue been installed without change out of the electrolytic capacitor.

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ISSUE RI-91-A-0263-02:

"Allegedly, a spare RPS Auxiliary Logic Drawer was used to support troubleshooting, on or about October 1, 1991, of a power supply relay failure within the same drawer in RPS channel 'D,' but was not installed in place of the failed drawer. Allegedly, the spare RPS Auxiliary Logic Drawer lacked some original parts (three lamps)."

REQUEST:

"Please provide your review of the above assertions. If the above conditions are valid, notify us of the corrective actions you have taken to prevent recurrence. Also provide us with an assessment of the safety significance of any identified deficiencies, including generic considerations."

RESPONSE:

This assertion is not valid. The alleged "spare" RPS auxiliary logic drawer that was used to support troubleshooting was actually a "parts" drawer. Necessary spare quality assurance (QA) parts have been taken from this drawer to support maintenance of the operating drawers. In this instance a relay socket was found broken in the operating drawer and a replacement was taken from the "parts" drawer to complete the repair. Since the function of the "parts" drawer is to provide a rapid means of obtaining parts when necessary, the condition in which some original parts are missing is to be expected. There was never any intention of using the "parts" drawer as a replacement for an operating drawer in the plant. Personnel working on RPS auxiliary logic drawers are not allowed to work on equipment without training on that equipment and the knowledge of equipment configuration that such training brings. As a result, the personnel working on these drawers know that the "parts" drawer is not to be used as a replacement drawer.

We were not aware that the parts drawer was a concern prior to receipt of the NRC letter, and we find no safety significance to this concern.

ISSUE RI-91-A-0232-02:

"On or about August 16, 1991, Loop Folders for the 'B' RCP oil reservoir alarm instruments allegedly did not reflect the actual physical location of specific power supplies. Allegedly, some boards had five separate power supplies within the power supply unit."

REQUEST:

"Please provide your review of the above assertions. If the above conditions are valid, notify us of the corrective actions you have taken to prevent recurrence. Also provide us with an assessment of the safety significance of any identified deficiencies, including generic considerations."

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RESPONSE:

The assertion that the RCP-B loop folders did not contain power supply location information is not valid. NUSCO drawings in each folder clearly indicate the location of Power Supply X-21 as C04R, slot BDU.

The GEMAC Model 570 power supply contains five circuit boards in one housing. Each circuit board, by design, provides power to a single instrument loop. The assertion that some boards had five separate power supplies within the power supply unit is a simple statement of fact. There is no safety or generic significance to these items.

We were not aware that the loop folder contents or power supply configuration was a concern prior to the receipt of the NRC letter.

ISSUE RI-91-A-0232-03:

"On or about August 16, 1991, Loop Folders for the 'B' RCP allegedly did not provide information regarding which additional instrument loads [were] powered from each power supply. For example, power supply X-21 supplied several other instrument loops in addition to the 'B' RCP upper and lower oil sump levels. The individual doing the work believed this information was considered essential to preclude the loss of power to other instrumentation when performing maintenance on an instrument loop component."

REQUEST:

"Please provide your review of the above assertions. If the above conditions are valid, notify us of the corrective actions you have taken to prevent recurrence. Also provide us with an assessment of the safety significance of any identified deficiencies, including generic considerations."

RESPONSE:

The assertion is not valid. Power Supply X-21 is clearly identified as an individual component on the loop drawing found in the instrument loop folders for this pump. The X-21 loop folder contains the following precaution: "Verify effects of loops powered by this power supply before de-energizing." We concur that it is essential to know what other loads are serviced by multiloop power supplies before working on them. Such information was, and is, readily available to technicians.

As is indicated in response to specific question Item 'e' below, loop folders do not necessarily contain all the information needed to do a job. The PMMS ID base and applicable drawings list the instruments powered from this supply. The information was promptly supplied to the technician performing this work by the PMMS group.

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ISSUE RI-91-A-0232-04:

"On or about August 16, 1991, Instrument Record Sheets for the 'B' RCP upper and lower oil reservoir level transmitters (LT-176 & LT-177) allegedly were missing from the Instrument Loop Folders."

REQUEST:

"Please provide your review of the above assertions. If the above conditions are valid, notify us of the corrective actions you have taken to prevent recurrence. Also provide us with an assessment of the safety significance of any identified deficiencies, including generic considerations."

RESPONSE:

We are unable to establish the validity of the assertion as stated. If the information record sheets, which are uncontrolled documents, are discovered missing, the information they contain can be easily obtained from NUSCO drawings and the PMMS ID system by any Instrumentation and Controls (I&C) technician prior to the start of a job.

On or about August 17, 1991, a technician requested new instrument record sheets for the L-176/177 loop folder. The records were provided by the PMMS group and inserted into the loop folder as the technician requested. It could not be independently determined whether or not record sheets were actually missing.

Obtaining information by such approved alternate means is of no safety consequence to the worker or the equipment; therefore, there is no safety or generic significance to this issue.

ISSUE RI-91-A-0232-05:

"There were allegedly nuisance alarms, associated with the 'B' RCP upper and lower oil reservoirs, caused by mechanical action within the RCP oil reservoirs (reference AWO [Automated Work Order] M2-91-08614)."

REQUEST:

"Please provide your review of the above assertions. If the above conditions are valid, notify us of the corrective actions you have taken to prevent recurrence. Also provide us with an assessment of the safety significance of any identified deficiencies, including generic considerations."

RESPONSE:

The assertion is correct in stating that the AWO at issue was written to investigate frequent low-level alarms for the oil reservoir on the 'B' RCP.

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The nature of the alarm instrumentation for the reservoir is such that the low-level alarm is conservative in nature. Oil is added to bring the oil reservoir to the proper level based on a marked indication on the oil reservoir (sight glass) rather than adding oil to clear the alarm. Experience has shown that when oil is added to the reservoir, less oil is added than would have been expected based on the existence of the alarm.

We do not consider the occasional existence of low-level alarms to be a mechanical problem and because of the conservative nature of the alarm instrumentation, we find no nuclear safety concern associated with this issue. The Millstone Unit No. 2 Engineering Department is aware of the alarm sensitivity versus actual oil level and has contacted the pump manufacturer. The situation remains under investigation.

SPECIFIC QUESTIONS:

"In addition to the above general request, please provide your review of the following specific questions. (a) Are spare parts, that are either located in the warehouse(s) or used for troubleshooting, controlled and maintained in accordance with the NU QA Program? (b) Is there a mechanical problem with RCP oil sump levels? (c) Does Unit 2 administratively control I&C documentation in a manner consistent with the methodology used for Units 1 and 3 and with the NU QA Program? (d) Is Departmental Instruction 2-I&C-10.03, Establishing and Maintaining Instrument Records, adequate for administrative control of I&C documentation? (e) In general, do loop folders adequately identify instrument loads for each power supply?"

RESPONSES TO SPECIFIC QUESTIONS:

- a. QA parts are processed and used in accordance with provisions of the NU QA Program. Non-QA parts are processed in accordance with ANSI Standard N45.2.2 (Level B). No specific program requirements exist for handling Non-QA parts during troubleshooting. There are no safety or generic issues associated with this item.
- b. NNECO does not believe there is a mechanical problem with the RCP oil sump levels. NNECO has been in contact with the pump manufacturer and the issue of sensitivity of the alarm circuitry remains under investigation.
- c. Generally, Millstone Unit No. 2 administratively controls I&C documentation under the same procedures and QA program as Millstone Unit Nos. 1 and 3. I&C documentation is governed overall by the site Administrative Control Procedures (ACPs) and various internal department instructions. The handling of work orders and work-related documents is governed by ACP-QA-2.02C. ACPs govern most other administrative aspects of department business including vendor manual control, nuclear records transmittals, procedures, correspondence, etc. In these respects the three units' administrative controls are the same for QA and Non-QA documents.

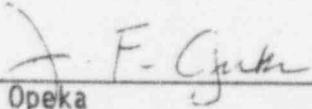
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Administrative areas that do differ are minor. All three units maintain loop folders and drawings, although the content and control of these documents may vary as provided by individual unit instructions. The Millstone Unit No. 2 I&C Department instructions govern such areas as loop folders, maintenance history, and the use of drawings and vendor manuals. The administrative controls are consistent with the Northeast Utilities QA Program as documented in the NUQAT.

- d. Department Instruction 2-I&C-10.03 was canceled several years ago and a newer version is now in effect. These department instructions are provided at the discretion of the department manager to give employees additional information for the implementation of the requirements contained in applicable ACPs and policies. Department instructions do not supersede the requirements of existing station procedures and are adequate for the administrative control of I&C documentation.
- e. Loop folders are not designed to provide technicians with all the information they need for every job; they typically only contain a loop drawing and references to other drawings. Instrument loads are identified in the PMMS ID system and applicable NUSCO drawings. All personnel in the department have the access and training to obtain such information from the PMMS computer or by asking the PMMS group directly. In this particular case, the list of loops powered by this supply were provided to the technician by the I&C PMMS group as soon as they were requested.

After our review and evaluation of these issues, we find that these issues did not present any indication of a compromise of nuclear safety. We appreciate the opportunity to respond and explain the basis of our actions. Please contact my staff if there are further questions on any of these matters.

Very truly yours,
NORTHEAST NUCLEAR ENERGY COMPANY



J. F. Opeka
Executive 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
J. T. Shedlosky, U.S. Nuclear Regulatory Commission, Millstone

02318

(170)

from the desk of

9/9/91

GENE KELLY

To: James [unclear] [unclear]

Subject: Wellstone (Hegston) 91-219 # 236

Re: Wellstone (Hegston) Wellstone aspect
problems with the reliability of data
in the EPF Chase (general) in
Diverse insurance facilities @
Lakeland + Elliptical.

Re: Wellstone (Hegston) Wellstone aspect
inclusion in inspection in these
aspect of the EPF Chase schedule
during the week of September 23rd.

Your support is appreciated

Gene

cc: [unclear], Higgins, Kagan

9/14/91

SAMPLE RECORD OF ALLEGATION PANEL DECISIONS

SITE: Millstone
ALLEGATION NO.: RI 91-A 0236
DATE: 4 SEP 91 (Panel No. 1 2 3 4 5)
PRIORITY: High Medium Low
SAFETY SIGNIFICANCE: Yes No Unkn
CONCURRENCE
TO CLOSEOUT: DD BC SC
CONFIDENTIALITY GRANTED: Yes No
(See Allegation Receipt Report)
IS THERE A HARASSMENT/DISCRIMINATION
ISSUE: Yes No
IF YES,
1) has the individual been informed of the DOL
process and the need to file a complaint within 30 days Yes No
2) has the individual filed a complaint
with DOL Yes No
3) has a letter been sent to the complainant seeking
any safety concerns Yes No
IS A CHILLING EFFECT LETTER WARRANTED: Yes No
IF YES, HAS IT BEEN SENT Yes No
HAS THE LICENSEE RESPONDED TO THE CHILLING
EFFECT LETTER: Yes No

ACTION:

- 1) DRSS look at issue during inspection & exercise
preps (exercise #26500)
- 2) _____
- 3) _____
- 4) _____
- 5) _____

NOTES:

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A L L E G A T I O N M A N A G E M E N T S Y S T E M

ALLEGATION NUMBER - RI-91-A-0236

RUN DATE: 09/11/91

DOCKET/FACILITY/UNIT: 05000245 / MILLSTONE 1
DOCKET/FACILITY/UNIT: 05000336 / MILLSTONE 2
DOCKET/FACILITY/UNIT: 05000423 / MILLSTONE 3
DOCKET/FACILITY/UNIT: /

/ 1
/ 2
/ 3
/

ACTIVITY TYPES - REACTOR

MATERIAL LICENSES -

FUNCTIONAL AREAS - OTHER

E M E R G E N C Y P L A N N I N G

DESCRIPTION - EMERGENCY OPERATIONS CENTER COMPUTER UNRELIABLE, AS SHOWN
BY LOSS OF EMERGENCY ASSESSMENT CAPABILITY WHEN THE COMPUTER
WENT DOWN DURING HURRICANE BOB.

CONCERNS -

1

SOURCE - LICENSEE EMPLOYEE

CONFIDENT - NO

RECEIVED - 910826 BY - EM KELLY

/ RI

ACTION OFFICE CONTACT - EM KELLY

- (FTS) 346-5183

SAFETY SIGNIFICANCE - UNKNOWN BOARD NOTIFICATION - NO

STATUS - OPEN SCHED COMPLETION - 911231 DATE CLOSED -

ALLEGATION SUBSTANTIATED -

ALLEGER NOTIFIED -

OI ACTION - OI REPORT NUMBER -

REMARKS - CALLED IN TO REGIONAL OFFICE.

SUPPORT OFFICE: RPS-4A
ACTION PENDING: CONVENE PANEL
DOCUMENTATION:
ALLEGER LAST CONTACTED: 26AUG91
REFERENCE:
KEYWORD: EP, DATA

ENTERED SYSTEM - 910903 CLOSED SYSTEM -

RECORD CHANGED - 910903

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0238

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INSTRUMENTATION

SEISMIC INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.3 The seismic monitoring instrumentation channels shown in Table 3.3-7 shall be OPERABLE.

APPLICABILITY: ALL MODES.

ACTION:

- a. With the number of OPERABLE seismic monitoring channels less than required by Table 3.3-7, restore the inoperable channel(s) to OPERABLE status within 30 days. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.
- b. With one or more seismic monitoring channels inoperable for more than 30 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the system to OPERABLE status.

SURVEILLANCE REQUIREMENTS

4.3.3.3 Each of the above seismic monitoring instrumentation channels shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations at the frequencies shown in Table 4.3-4.

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TABLE 3.3-7
SEISMIC MONITORING INSTRUMENTATION

<u>INSTRUMENT CHANNEL</u>	<u>SENSOR LOCATION</u>	<u>MEASUREMENT RANGE</u>	<u>MINIMUM CHANNELS OPERABLE</u>
1. TIME HISTORY ACCELEROGRAPHS			
a. Containment Base Slab	El. -24'0" @ 215° outside of containment	.001 to 1 g	1
b. Containment Structure	El. 75'0" @ 215° outside of containment	.001 to 1 g	1
c. Auxiliary Building	El. 14'6" in maintenance work area	.001 to 1 g	1
d. Intake Structure	El. 18'0" on south wall	.001 to 1 g	1
e. Free Field	El. 14'6" ground level on pad 139' southeast of condensate storage tank	.001 to 1 g	1
2. PEAK ACCELEROGRAPHS			
a. Containment Base Slab	El. -24'0" outside of containment	0 to 1 g	1
b. Steam Generator Support	El. -0'7" S/G #1	0 to 1 g	1
c. Pressurizer Support	El. 14'6"	0 to 1 g	1
d. Safety Injection Tank Support	El. 38'6"	0 to 1 g	1

TABLE 3.3-7 (Continued)

SEISMIC MONITORING INSTRUMENTATION

<u>INSTRUMENT CHANNEL</u>	<u>SENSOR LOCATION</u>	<u>MEASUREMENT RANGE</u>	<u>MINIMUM CHANNELS OPERABLE</u>
3. SEISMIC TRIGGER			
a. Containment Base Slab	El. -24'0" @ 215° outside of containment	.005 to .02 g	1
4. RESPONSE SPECTRUM RECORDER			
a. Containment Base Slab	El. -24'0" outside of containment	-	1

TABLE 4.3-4

SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT CHANNEL</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
1. TIME HISTORY ACCELEROGRAPHS			
a. Containment Base Slab	M	R	SA
b. Containment Structure	M	R	SA
c. Auxiliary Building	M	R	SA
d. Intake Structure	M	R	SA
e. Free Field	M	R	SA
2. PEAK ACCELEROGRAPHS			
a. Containment Base Slab	N.A.	R	N.A.
b. Steam Generator Support	N.A.	R	N.A.
c. Pressurizer Support	N.A.	R	N.A.
d. Safety Injection Tank Support	N.A.	R	N.A.
3. SEISMIC TRIGGER			
a. Containment Base Slab	N.A.	R	SA
4. RESPONSE SPECTRUM RECORDER			
a. Containment Base Slab	N.A.	R	N.A.

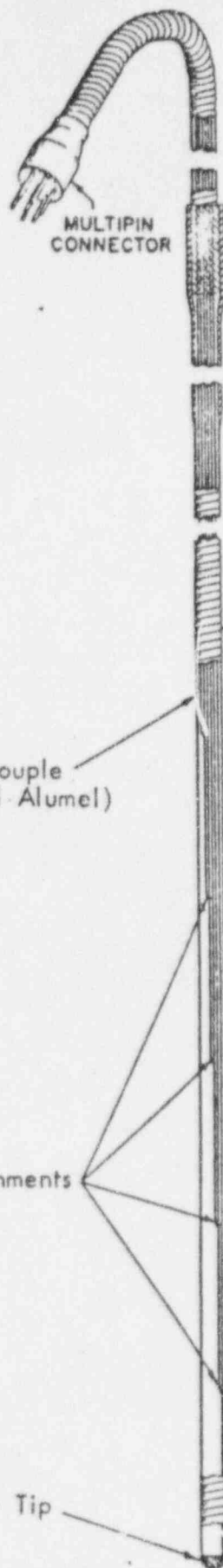
ADMINISTRATIVE CONTROLS

SPECIAL REPORTS

6.9.2 Special reports shall be submitted to the Regional Administrator, Region I, U. S. Nuclear Regulatory Commission, within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification:

- a. Inoperable Seismic Monitoring Instrumentation, Specification 3.3.3.3.
- b. Inoperable Meteorological Monitoring Instrumentation, Specification 3.3.3.4.
- c. Safety Class 1 Inservice Inspection Program Review, Specification 4.4.10.1.
- d. ECCS Actuation, Specifications 3.5.2 and 3.5.3.
- e. Fire Detection Instrumentation, Specification 3.3.3.7.
- f. Fire Suppression Systems, Specifications 3.7.9.1 and 3.7.9.2.
- g. RCS Overpressure Mitigation, Specification 3.4.9.3.
- h. Radiological Effluent Reports required by Specifications 3.11.1.2, 3.11.2.2, 3.11.2.3 and 3.11.4.

Multipin Connector



MULTIPIN
CONNECTOR

Seal Plug

Thermocouple
(Chromel-Alumel)

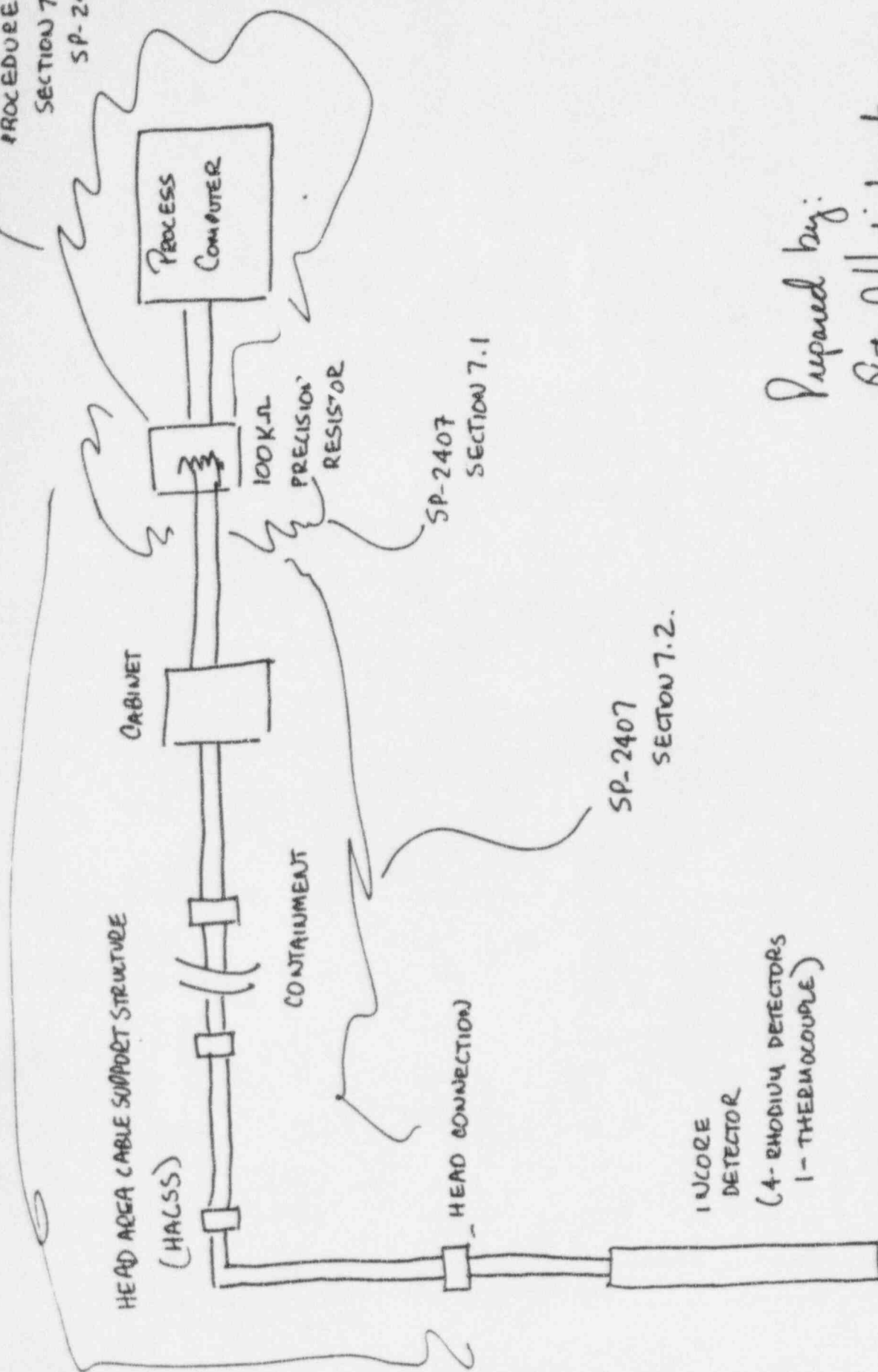
Flexible Housing Tube

Detector Attachments
(Rhodium)

Bullet Nose Tip

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MILLSTONE
PROCEDURE
SECTION 7.4
SP-2407



Prepared by:
Peter J. Hargreaves
9/12/91

FORM APPROVED

DATE 6-8-94MTG. NO. 2-90-66

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INSTRUMENT CALIBRATION REVIEW FORM

Part 1 To be completed by person performing work.

ICR Number 91-019 AWO# M2-91-1668 Date 3-12-91 Time 1300Instrument or Device Affected ID# NE-9451 Name GARY JOHNSONProcedure Number: SP2405A Title: SEISMIC EVENTS CHANNEL CHECKDescription of Event or Calibration Results Vertical portion onNE-9451 RECORDING HEAD WAS NOT OPERATING91-02708In 2 91 02670Cause: (If Facts are Known) ☐ Instrument Drift ☐ Unknown☒ Other Explain: BROKEN WIRE

Would the Instrument or Control System have performed its function as required by Tech Specs?

Yes ☐ No ☒ N/A ☐Basis: VERTICAL CHANNEL WOULD NOT OPERATE. FOUR OF
FIVE CHANNELS WOULD HAVE RECORDED 3 INPUTS EACH. FREE FIELD
(NE9451) WOULD HAVE ONLY INDICATE ON TWO OF THREE INPUTS.

Was the Instrument or Control System (Alarm, Bistable Trip, etc.) found in a conservative condition?

Yes ☐ No ☐ N/A ☒Basis: NO ALARM FOR THIS FUNCTION. ALARM ONLY FOR SEISMIC
ELENT & THAT WOULD HAVE WORKED.Is a PIR recommended? Yes ☐ No ☒

Completed by:

GARY JOHNSON
Technician/Specialist

Reviewed by:

Raymond O. Schick
I&C Supervisor

Part 2 To be completed by SS or SCO.

Mode 1 Power 100% Temp. 575° TAUE Press. 2254PIR written ☒ No ☐ Yes (If yes, reference ICR on PIR & attach copy of PIR) PIR# N/A

Completed by:

Mooney
Unit 2 SS/SCO

Concurred with:

J. BECKER
Duty OfficerI&C Form 2437A-1
Rev. 2

Part 3 To be completed by I&C Manager/Designee

Cause of problem: Broken wire

Corrective Action (if required): Repaired under HWO M2-91-02670

Long Term reliability concerns ☐ YES ☒ NO

Action to address concerns: _____

Effect on previous surveillances ☐ YES ☒ NO

Action Required: _____

I&C Open Item ☐ YES ☒ NO If Yes, # _____

Human Performance Enhancement System (HPES) review required?

☐ YES ☒ NO Date forwarded _____

Completed By: Don Thindell

Approved By: 
I&C Manager

INSTRUMENT CALIBRATION REVIEW FORM

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Part 1 To be completed by person performing work.

ICR Number 91-062 AWO# m2-91-07071 Date 8-13-91 Time 1300Instrument or Device Affected ID# NE9447 / NE 9450 Name SEISMIC MONITORProcedure Number: SP2405A Title: SEISMIC EVENTS SYS. CHANNEL CHECKDescription of Event or Calibration Results THE TAPES FOR NE9447 & NE 9450 were found NOT turning & NOT recording.Cause: (If Facts are Known) ☐ Instrument Drift ☐ Unknown ☐ Equipment Failure☒ Other Explain: RECORDING SYSTEM IS GENERALLY UNRELIABLE.

Were the redundant channels operable when the problem was found?

Yes ☐No ☐N/A ☒Basis: THERE ARE NO REDUNDANT CHANNELS.

Would the over all Control or Instrument System have performed its function as required by Tech Specs?

Yes ☐No ☒N/A ☐Basis: TECH SPECS APPEAR TO REQUIRE NO LESS THAN ALL FIVE TIME HISTORY ACCEPTOR CRAPHS TO BE OPERABLE IN TABLE 3.3-7.

Was the Instrument or Device (Alarm, Bistable Trip, etc.) found in a conservative condition?

Yes ☐No ☒N/A ☐Basis: NO. TWO OF THE FIVE RECORDERS WERE FOUND TO NOT BE RUNNING.

Completed by:

GARY JOHNSON
Technician/Specialist

Reviewed by:

Ray O. Silke
I&C Supervisor

Is a PIR recommended?

Yes ☐No ☒PIR written ☐ Yes (If yes, reference ICR on PIR & attach copy of PIR)☒ No

Part 2 To be completed by SS or SCO.

Mode 3 Power 0 Temp. 533.7 Press. 2263

PIR# NA

Completed by: David Clark
Unit 2 SS/SCO

Concurred with: J.F. Smith For
Duty Officer

Part 3 To be completed by PMMS Technician

91-08623
AWO# 91-08624 (Documents ICR in PMMS)

Part 4 To be completed by I&C Engineer

Cause of problem: _____

Corrective Action (if required): _____

Have there been similar problems with this component: PMMS? _____

NPRDS? _____

Effect on previous surveillances [] YES [] NO

Action Required: _____

I&C Open Item [] YES [] NO If Yes, # _____

Completed By: _____

Approved By: _____
I&C Manager

SURVEILLANCE COVER SHEET

OP4430 REV 10-84 FORM APPROVED		DATE 4/9/86	PAGE 1 OF 3
REFERENCE SPEC Items 1a, 1b, 1c, 1d, 1e, 3a	REFERENCE PROCEDURE SP 2405A	PORC MTG. NO. 2-86-27	
SCHEDULE DATE m2-91-07071	APPLICABLE MODE All	FREQUENCY M	
TEST AUTHORIZED BY (SS/SCO)	DATE 8-13-91	ACCEPTANCE CRITERIA MET:	
COMPLETED BY J. JOHNSON / J. NEWMAN	DATE 8-13-91	<input type="checkbox"/> YES	
ACCEPTED BY (SS)	DATE	<input type="checkbox"/> NO	
APPROVED BY (DEPARTMENT HEAD)	DATE		

☒ TECH SPEC
SURVEILLANCE☐ MAINTENANCE
RESTORATION☐ SYSTEM
ALIGNMENT☐ NON-TECH SPEC.
SURVEILLANCE☐ ISI TESTING

TEST EQUIPMENT	QA NUMBER	CAL DUE DATE
DMM	907	12-7-91

ACCEPTANCE CRITERIA

As denoted by an asterisk (*).

IN ACCORDANCE WITH REFERENCE PROCEDURE	INITIALS
1. PREREQUISITES/INITIAL CONDITIONS COMPLETED	
2. PRECAUTIONS NOTED	
3. COMMENTS: (IF MAINTENANCE RESTORATION, INDICATE BELOW WORK ORDER #, ETC.)	
- TAPES FOR NE-9447 & NE-9450 were found not turning. ICR 91-062 INITIATED.	
4. DATA	

Axis

Detector	Step	Data	Acceptance Criteria	Longitudinal				Transverse			Vertical	
				As Found	As Left	As Found	As Left	As Found	As Left	As Found	As Left	As Found
NE9447	7.1.1.1.1 12	Noise	< ± 100mV *	see comments	30mV	see comments	30mV	see comments	30mV	see comments	40mV	40mV
CTMT	7.1.1.1.2 12	Offset	< ± 200mV *	↓	90mV	↓	yes	↓	yes	↓	yes	yes
Base Slab (-25' Elev.)	7.1.1.1.3 12	Undamped Osc.	Bell-Shaped Curve(Yes-No) *	↓	yes	↓	yes	↓	yes	↓	yes	yes
NE9448	7.1.1.1.1 12	Noise	< ± 100mV *	40mV	40mV	40mV	40mV	30mV	40mV	30mV	30mV	30mV
Upper	7.1.1.1.2 12	Offset	< ± 200mV *	70mV	70mV	110mV	110mV	10mV	110mV	10mV	10mV	10mV
CTMT Wall (+75' Elev.)	7.1.1.1.3 12	Undamped Osc.	Bell-Shaped Curve(Yes-No) *	yes	yes	yes	yes	yes	yes	yes	yes	yes
NE9449	7.1.1.1.1 12	Noise	< ± 100mV *	10mV	10mV	15mV	15mV	15mV	15mV	15mV	15mV	15mV
Electric	7.1.1.1.2 12	Offset	< ± 200mV *	75mV	75mV	10mV	10mV	5mV	10mV	5mV	5mV	5mV
Shop	7.1.1.1.3 12	Undamped Osc.	Bell-Shaped Curve(Yes-No) *	yes	yes	yes	yes	yes	yes	yes	yes	yes
(+14'6" Elev.)	7.1.1.1.1 12	Noise	< ± 100mV *	see comments	40mV	see comments	40mV	see comments	40mV	see comments	40mV	40mV
NE9450	7.1.1.1.2 12	Offset	< ± 200mV *	↓	70mV	↓	yes	↓	yes	↓	yes	yes
Intake	7.1.1.1.3 12	Undamped Osc.	Bell-Shaped Curve(Yes-No) *	↓	yes	↓	yes	↓	yes	↓	yes	yes
Structure	7.1.1.1.1 12	Noise	< ± 100mV *	10mV	10mV	15mV	15mV	10mV	15mV	10mV	10mV	10mV
(+14'6" Elev.)	7.1.1.1.2 12	Offset	< ± 200mV *	45mV	45mV	35mV	35mV	30mV	35mV	30mV	30mV	30mV
NE9451	7.1.1.1.3 12	Undamped Osc.	Bell-Shaped Curve(Yes-No) *	yes	yes	yes	yes	yes	yes	yes	yes	yes
Free	7.1.1.1.1 12	Noise	< ± 100mV *	↓	yes	↓	yes	↓	yes	↓	yes	yes
Field	7.1.1.1.2 12	Offset	< ± 200mV *	yes	yes	yes	yes	yes	yes	yes	yes	yes
(+14'6" Elev.)	7.1.1.1.3 12	Undamped Osc.	Bell-Shaped Curve(Yes-No) *	yes	yes	yes	yes	yes	yes	yes	yes	yes

FORM APPROVED

Unit 2 Director

DATE

6-8-96

MTG. NO. 2-90-66

INSTRUMENT CALIBRATION REVIEW FORM

Part 1 To be completed by person performing work.

ICR Number 91-033 AWO# m2 91 02710 Date 4-11-91 Time 11W

Instrument or Device Affected ID# SEISMIC Name SEISMIC MONITORProcedure Number: SP245A Title: SEISMIC EVENTS SYS Functional TESTDescription of Event or Calibration Results As Found Low Voltage BATTERY UNITAGE (H2VDC)Fund Low - Auto m291-03653 INITIATED TO - H2VDC - REPLACEDBATTERIES & CONDENS ORL

Cause: (If Facts are Known) [] Instrument Drift [] Unknown

Other Explain: BATTERIES SHORT LIFE & AGE

Would the Instrument or Control System have performed its function as required by Tech Specs?

Yes ☒ No ☒ N/A []Basis: WAS THE POWER (BATTERY FOR UNITAGE) - AC BATTERY CHARGERWOULD NOT RUN UP

Was the Instrument or Control System (Alarm, Bistable Trip, etc.) found in a conservative condition?

Yes [] No [] N/A ☒Basis: IT IS A DOUBTFUL THAT THE SEISMIC RECORDS WOULD HAVE HAD ENOUGH H2VDC SUPPLY TO OPERATE, (IF EVENT TRIGGER WAS RECEIVED)is a PIR recommended? Yes ☒ No []

105 4/12/91

Completed by: B. D. Jahan
Technician/SpecialistReviewed by: R. Bonner
I&C Supervisor

Part 2 To be completed by SS or SCO.

Mode 1 Power 100 Temp. 574 Press. 2260PIR written [] No ☒ Yes (If yes, reference ICR on PIR & attach copy of PIR) PIR# 91-032Completed by: AO
Unit 2 SS/SCOConcurred with: R. Bonner
Duty Officer

I&C Form 2437A-1

Part 3 To be completed by I&C Manager/Designee

Cause of problem: End of Battery life

Corrective Action (if required): Replaced Batteries with AWC m2-91-C3653

Long Term reliability concerns [] YES [X] NO

Action to address concerns: _____

Effect on previous surveillances [] YES [X] NO

Action Required: _____

I&C Open Item [] YES [X] NO If Yes, # _____

Human Performance Enhancement System (HPES) review required?

[] YES [X] NO Date forwarded _____

Completed By: Ken Dunde

Approved By: _____
I&C Manager

PLANT INCIDENT REPORT - PART A

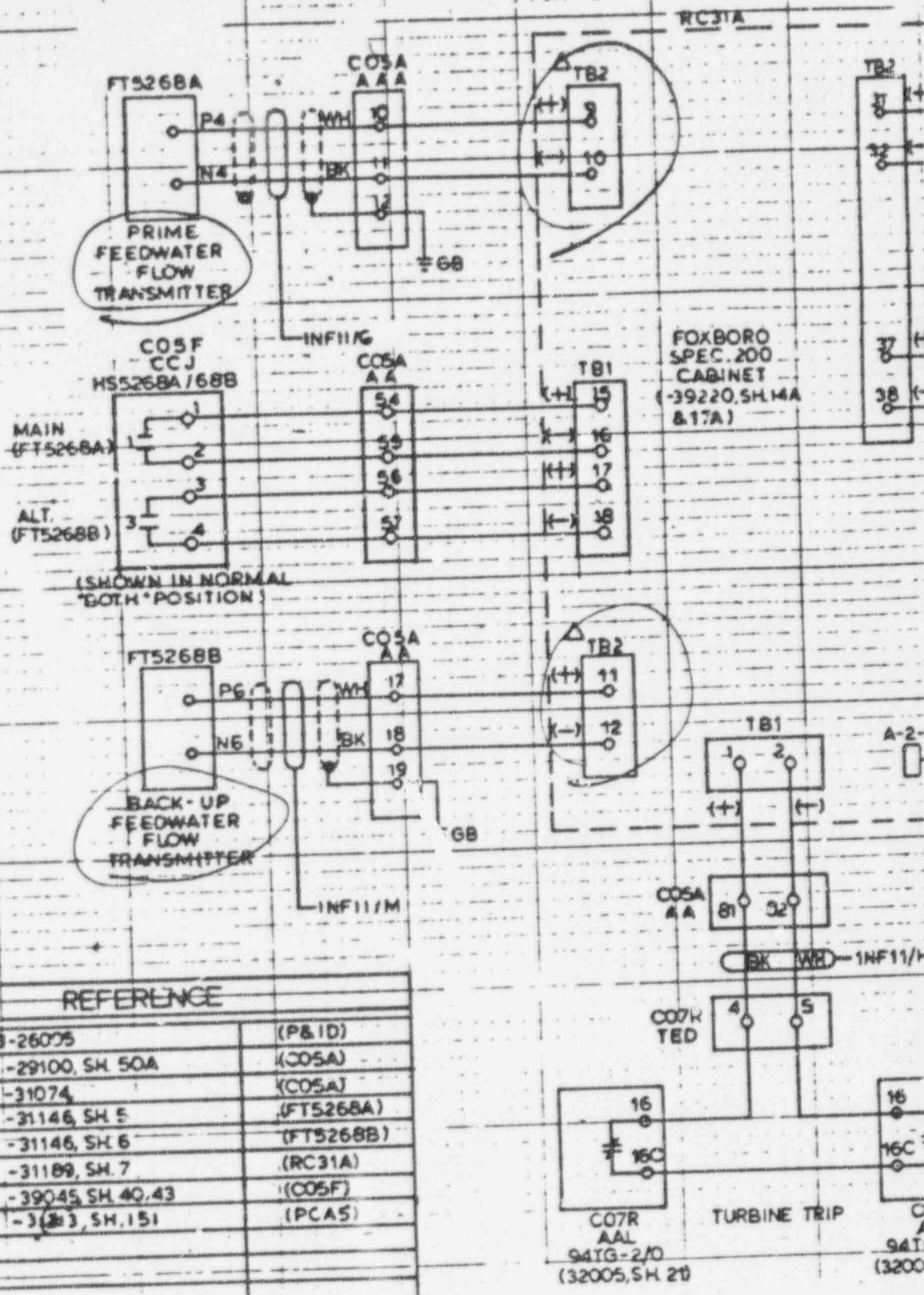
Report Date: 4-12-91 10:03

I. PIR INITIATION		INCIDENT DATE 4-11-91		INCIDENT TIME 1100	
Event Title: Low D.C. Voltage, Seismic Monitor System					
Description of Event: H2V Supply Loaded Voltage was found to be 6.4V/vice 12VDC. WHILE PERFORMING I&C 2405A-1					
Description of Cause (if known): OLD BATTERIES					
System Affected: SEISMIC	System Number: 2405	PNMIS ID Number: —	Name of Initiator: A. OLECHNOWICZ	Signature: [Signature]	
II. PLANT INFORMATION					
Plant Conditions:	Mode: 1	Power Cell: 100	Temp: 574°F	Pressure: 2260 PSIA	
Description of Initial Action: Entered TBAS 3.3.3.3a (30 DAYS) - Procured Replacement Batteries					
Safety Implications: NONE					
Security Implications: NONE					
Incident Category:					
<input type="checkbox"/> A. Immediate		<input type="checkbox"/> B. 30-Day LER		<input type="checkbox"/> C. Public Interest	
<input checked="" type="checkbox"/> D. Not reportable to NRC		<input type="checkbox"/> D. Fitness for Duty		basis: 4701-4 Bldg 12	
Operations Manager Notified		Normal Hours of A B C Incidents		Name: J. SMITH Date: 4-12-91 Time: 1400	
Duty Officer Notified		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Name: R. BONNER Date: 4-12-91 Time: 1330	
SISA Notified and EPIP 4112 Notifications Made		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Name: — Date: — Time: —	
Security Shift Supervisor (Potential Security Threat):		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Name: — Date: — Time: —	
Procedures Used: 2405A		Shift Supervisor Signature: [Signature]		Date: 4-12-91	
III. INVESTIGATION INFORMATION					
Personnel Questionnaires Attached:		<input type="checkbox"/> Yes <input type="checkbox"/> No		List: —	
Trouble Reports Submitted:		<input type="checkbox"/> Yes <input type="checkbox"/> No		Procedure Changes: —	
Photographs: <input type="checkbox"/> Yes <input type="checkbox"/> No		Material Being Held: <input type="checkbox"/> Yes <input type="checkbox"/> No		Location: —	
AWO Copy Attached: <input type="checkbox"/> Yes <input type="checkbox"/> No		Safety Tag Sheet Copy Attached: <input type="checkbox"/> Yes <input type="checkbox"/> No		—	
Information Gathered By: —		Signature: —		Date: —	
IV. DUTY OFFICER REVIEW					
Immediate Investigation Necessary: <input type="checkbox"/> Yes <input type="checkbox"/> No		Signature: —		Date: —	
V. UNIT DIRECTOR					
Assigned Incident Category: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> PSSH		Remarks: —			
PORC Review: <input type="checkbox"/> Yes <input type="checkbox"/> No		NRB Review: <input type="checkbox"/> Yes <input type="checkbox"/> No		NEO 2.25 Initiated: <input type="checkbox"/> Yes <input type="checkbox"/> No	
Investigator Assigned: —		Unit Director: —		Date: —	

06/08/9

22

X 0238



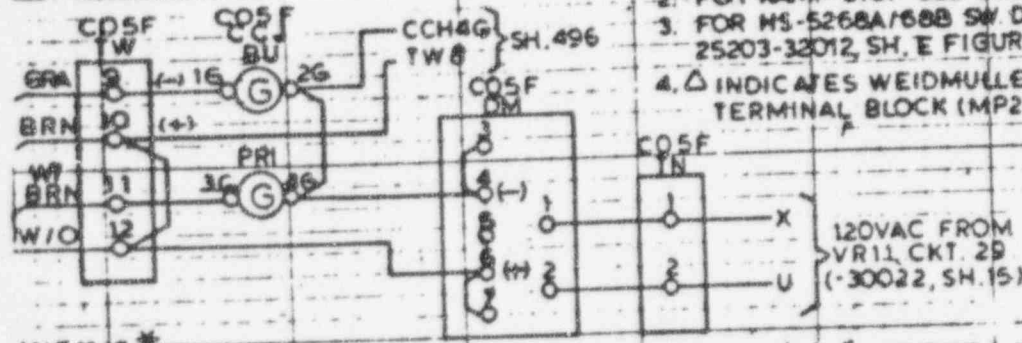
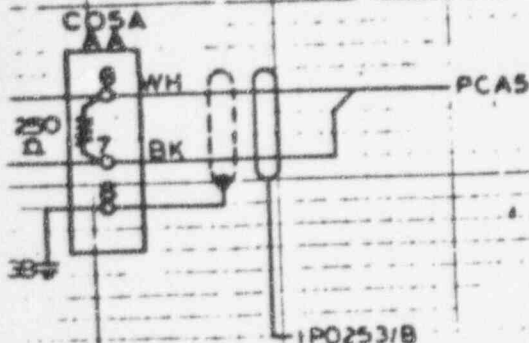
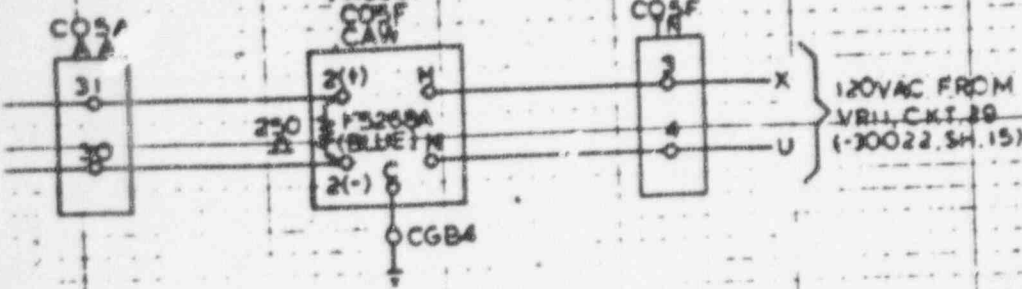
BERNINIS 44-242 54461

B

A

5/15²

TRACOR
WESTRONICS
D&E
FR5301
COSF
CAW



NOTES:

1. * PART OF CABLE W/30 PIN CONNECTOR SUPPLIED BY FOXBORO
2. FOR RAMP STOP SEE 25203-28500, SH. 496
3. FOR MS-5268A/68B SW. DEVELOPMENT SEE 25203-32012, SH. E FIGURE 1.
4. Δ INDICATES WEIDMULLER TEST TYPE TERMINAL BLOCK (MP2 I & C).

NON
QA.

REVISIONS DURING CONSTRUCTION

P. A. 1

THIS DWG SUPERSEDES:
25203-32012, SH. 33
REDRAWN, IN PART FROM
25203-28500, SH. 588, REV. 1

NORTHEAST UTILITIES SERVICE CO.			
NORTHEAST NUCLEAR ENERGY CO.			
MILLSTONE UNIT No. 1			
FT5268A & FT5268B FEEDWATER FLOW S.G. #1			
LOOP DIAGRAM			
WATERFORD, CT.			
29- 219	3	AS BUILT PER DCR-M2-S-713-86	BY MAT
49	2	AS BUILT PER DCR-M2-S-518-85	DATE 2-12-83
W	P. A. 1	NO. DATE	REVISIONS
BY	CHK	APP	APP
DATE	DATE	DATE	DATE
2-12-83	6-3-83	6-17-83	6-17-83
25203-28500, SH. 588			

NORTHEAST UTILITIES DRAWING CHANGE/SUBMITTAL REQUEST

PAGE
1 of 1
P.A. NO
86-242

CHECK ONE:

☒ DCR NO. ☐ DSR NO. DCR-M2-S-801-91

POCR/PDCE NO.

8.0 GFR	NEW REV LEVEL (GFR USE ONLY)	TITLE OF DRAWING	RESP. DESIGNER (GED USE ONLY)	DATE	EXT	SUBMITTED BY (PLEASE PRINT)	REASON FOR REVISIONS (USE SHEET 1A TO LIST ADDITIONAL DRAWINGS)
		TERMINATION DRAWING POBORD		3798	8-8-91	P. E. PELLEO	
		SPEC 200 RACK RGSLA					
		TERMINATION DRAWING POBORD					
		SPEC 200 RACK RGSLA					
		FLEEWATER CONTROL SYSTEM					
		RACK RGSLA WIRING DIAGRAM					
		FLEEWATER CONTROL SYSTEM					
		RACK RGSLA WIRING DIAG.					
		P.A. SPEAKER/AMPLIFIER SCHEDULE					
		CONN. DAIG. INDOOR MUTED SPEAKER					

OTHER RECORDS AFFECTED: (INCLUSION DOES NOT INITIATE UPDATE)		QUALITY STATUS QA DRAWING INCLUDED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
ACTION REQUIRED: (ONLY 1 BLOCK FROM SECTION 2.0 MAY BE CHECKED)			
2.1	<input type="checkbox"/>	GED TO UPDATE EXISTING DRAWINGS	
2.2	<input type="checkbox"/>	GED TO DEVELOP NEW DRAWINGS	
ENGINEERING SUPERVISOR		DATE	
2.3	<input type="checkbox"/>	ISSUE REPRODUCIBLE TO AE/VENDOR AE/VENDOR: _____ RESPONSIBLE NU EMPLOYEE: _____	
2.4	<input checked="" type="checkbox"/>	ISSUE REPRODUCIBLES TO GED FOR INCORPORATION OF PROPOSED DESIGN	
2.5	<input type="checkbox"/>	ISSUE REPRODUCIBLES TO GED FOR CHANGE DOCUMENT INCORPORATION/OTHER AS-BUILT UPDATES	
2.6	<input type="checkbox"/>	SUBMIT NEW DRAWINGS	
DESIGN SUPERVISOR		DATE	
GRITS UPDATED: (REQ D. UNLESS BLOCK 2.6 IS CHECKED)		8-8-91	
DRAWING TYPE/STATUS LEGEND: S = REPRODUCIBLE SENT TO GED P = PREVIOUSLY RELEASED TO GED N = NEW NUMBER ISSUE B = BLUEPRINT SENT TO GED A = AP CARD ONLY O = _____			
GFR REPRESENTATIVE		DATE	
Mina Rivera		8-8-91	
ENGINEERING REVIEW COMPLETED: (REQ D. ONLY WHEN ASSOCIATED DRAWING CHANGES ARE NOT FULLY SUPPORTED BY AN APPROVED CHANGE DOCUMENT OR ARE NOT VERIFIED AND REVIEWED AS A RESULT OF OTHER APPROVED PROCEDURES)			
<input type="checkbox"/> AS-BUILT VERIFICATION COMPLETED			
DRAWING CHANGES: <input type="checkbox"/> HAVE BEEN APPROVED BY POCR/PDCE INDICATED <input type="checkbox"/> ARE NON-POCR/PDCE ASSOCIATED. DISPOSITION:			
ENGINEERING SUPERVISOR		DATE	
DRAWINGS APPROVED:			
DESIGN SUPERVISOR	<input type="checkbox"/> PARTIAL <input type="checkbox"/> COMPLETE	DATE	
DESIGN SUPERVISOR	<input type="checkbox"/> PARTIAL <input type="checkbox"/> COMPLETE	DATE	
DCP UPDATED:			
GDR REPRESENTATIVE	<input type="checkbox"/> PARTIAL <input type="checkbox"/> COMPLETE	DATE	
GDR REPRESENTATIVE	<input type="checkbox"/> PARTIAL <input type="checkbox"/> COMPLETE	DATE	
GRITS UPDATED:			
<input type="checkbox"/> ENTER INTO GRITS <input type="checkbox"/> DISTRIBUTE PRINTS <input type="checkbox"/> RETURN D: -GDR COPY (ENG/DESIGN SUPV.)			
GFR REPRESENTATIVE	<input type="checkbox"/> PARTIAL <input type="checkbox"/> COMPLETE	DATE	
GFR REPRESENTATIVE	<input type="checkbox"/> PARTIAL <input type="checkbox"/> COMPLETE	DATE	

MILLSTONE UNIT 2
PLANT DESIGN CHANGE LOG
PRINTED: 07/05/91

```

***** Please Complete This Section *****
PDCR      ORIGINATOR: MGCheskis      SYSTEM NO: 2330A *
NUMBER    RESP INDV: RTBlanchard    PA NO: 89-078*
2-031-90  DEPT: Engineering          QA: Y
          DATE OPENED: 09/26/90      SFTY EVAL: Y
          SHORT FORM: Y
TITLE: MOV 2-RB-30.18 SPRING PACK REPLACEMENT

APPROVAL DATE: 10/05/90  DATE SENT NPRF:
PORC MTG #: 2-90-136    NPRF LOG #:
PROJECTED ISD: 06/30/92  NPRF UNIQUE #:
DATE INSTALLED:         DATE SENT NRB: 10/09/90
PROJECTED CLOSEOUT: 12/31/92 (NRB)EN2#: EN2-90-137
DATE CLOSED:           DATE SENT CMP:
                      (CMP)EN2#:
                      ANN RPT YR:

COMMENTS: WAITING IMPLEMENTATION,, 1992 OUTAGE PROJECT (1/91)

```

```

***** Please Complete This Section *****
PDCR      ORIGINATOR: MGCheskis      SYSTEM NO: 2316 *
NUMBER    RESP INDV: RTBlanchard    PA NO: 89-078*
2-032-90  DEPT: Engineering          QA: Y
          DATE OPENED: 09/26/90      SFTY EVAL: Y
          SHORT FORM: Y
TITLE: MOV 2-MS-065B SPRING PACK REPLACEMENT

APPROVAL DATE: 10/05/90  DATE SENT NPRF:
PORC MTG #: 2-90-136    NPRF LOG #:
PROJECTED ISD: 06/30/92  NPRF UNIQUE #:
DATE INSTALLED:         DATE SENT NRB: 10/09/90
PROJECTED CLOSEOUT: 12/31/92 (NRB)EN2#: EN2-90-137
DATE CLOSED:           DATE SENT CMP:
                      (CMP)EN2#:
                      ANN RPT YR:

COMMENTS: WAITING IMPLEMENTATION, 1992 OUTAGE PROJECT

```

```

***** Please Complete This Section *****
PDCR      ORIGINATOR: MGCheskis      SYSTEM NO: 2313 *
NUMBER    RESP INDV: RTBlanchard    PA NO: 89-078*
2-033-90  DEPT: Engineering          QA: Y
          DATE OPENED: 09/26/90      SFTY EVAL: Y
          SHORT FORM: Y
TITLE: MOV 2-MS-201 & 2-MS-202 SPRING PACK REPLACEMENT

APPROVAL DATE: 10/05/90  DATE SENT NPRF: 04/15/91
PORC MTG #: 2-90-136    NPRF LOG #: 91MPEZ2241
PROJECTED ISD:         NPRF UNIQUE #: 9113720033
DATE INSTALLED: 10/29/90 DATE SENT NRB: 10/09/90
PROJECTED CLOSEOUT:    (NRB)EN2#: EN2-90-137
DATE CLOSED: 04/15/91  DATE SENT CMP: 04/15/91
                      (CMP)EN2#: EN2-91-123
                      ANN RPT YR: 1990

COMMENTS: COMPLETE

```

```

***** Please Complete This Section *****
PDCR      ORIGINATOR: WCSaccoccio    SYSTEM NO: 2346A *
NUMBER    RESP INDV: WCSaccoccio    PA NO: None
2-034-90  DEPT: Engineering          QA: Y
          DATE OPENED: 09/27/90      SFTY EVAL: Y
          SHORT FORM: Y
TITLE: DIESEL GENERATOR SYNC CHECK RELAY CONTACT ADDITION

APPROVAL DATE: 11/28/90  DATE SENT NPRF: 02/21/91
PORC MTG #: 2-90-189    NPRF LOG #: 91MPEZ2239
PROJECTED ISD:         NPRF UNIQUE #: 9113720031
DATE INSTALLED: 02/05/91 DATE SENT NRB: 01/03/91
PROJECTED CLOSEOUT:    (NRB)EN2#: EN2-91-004
DATE CLOSED: 02/11/91  DATE SENT CMP: 02/21/91
                      (CMP)EN2#: EN2-91-053
                      ANN RPT YR:

COMMENTS: COMPLETE

```

```

***** Please Complete This Section *****
PDCR      ORIGINATOR: PHBaumann      SYSTEM NO: Doors *
NUMBER    RESP INDV: PHBaumann      PA NO: None
2-035-90  DEPT: Engineering          QA: Y
          DATE OPENED: 09/28/90      SFTY EVAL: Y
          SHORT FORM: Y
TITLE: MELB DOOR UPGRADE

APPROVAL DATE: 10/15/90  DATE SENT NPRF: 06/29/91
PORC MTG #: 2-90-148    NPRF LOG #:
PROJECTED ISD:         NPRF UNIQUE #:
DATE INSTALLED: 06/17/91 DATE SENT NRB: 10/19/90
PROJECTED CLOSEOUT:    (NRB)EN2#: EN2-90-253
DATE CLOSED: 06/27/91  DATE SENT CMP: 06/29/91
                      (CMP)EN2#: EN2-91-236
                      ANN RPT YR: 1990

COMMENTS: COMPLETE

```

```

***** Please Complete This Section *****
PDCR      ORIGINATOR: RLBeal         SYSTEM NO: 2326A *
NUMBER    RESP INDV: RLBeal         PA NO: None
2-036-90  DEPT: Maintenance        QA: Y
          DATE OPENED: 09/29/90      SFTY EVAL: N
          SHORT FORM: Y
TITLE: VITAL SWITCHGEAR COOLERS CHANNEL HEAD BOLTING

APPROVAL DATE:         DATE SENT NPRF:
PORC MTG #:           NPRF LOG #:
PROJECTED ISD:         NPRF UNIQUE #:
DATE INSTALLED:        DATE SENT NRB:
PROJECTED CLOSEOUT:    (NRB)EN2#: N/A
DATE CLOSED:          DATE SENT CMP:
                      (CMP)EN2#:
                      ANN RPT YR:

COMMENTS: BEING GENERATED

```


MILLSTONE UNIT 2
PLANT DESIGN CHANGE EVALUATION LOG
PRINTED: 07/04/91

```

***** Please Complete This Section *****
PDC#      ORIGINATOR: TAMoore      SYSTEM NO:
NUMBER    RESP INDV: TAMoore      SFTY EVAL: M
MP2-90-031  DEPT: Maintenance
DATE OPENED: 04/02/90
TITLE: MAINTENANCE SHOP ELECTRICAL MODIFICATIONS
  
```

```

APPROVAL DATE: 07/06/90  DATE SENT NPRF:
DATE IMPLEMENTED: 02/15/91  NPRF LOG #:
EXP COMP DATE: 08/31/91  NPRF UNIQUE #:
DATE CLOSED:  DATE SENT CMP:
(CMP)EN2#:
ANN RPT YR:
  
```

COMMENTS: WORKING CLOSEOUT (4/91)

```

***** Please Complete This Section *****
PDC#      ORIGINATOR: SHStearns      SYSTEM NO: 2404
NUMBER    RESP INDV: SHStearns      SFTY EVAL: M
MP2-90-032  DEPT: I&C
DATE OPENED: 04/04/90
TITLE: REPLACEMENT OF MAGNAHELIC WITH PHOTOHELIC SWITCHES
FOR RAD MONITOR FIS'S
COMMENTS: SIX OF SEVEN COMPLETE (4/91)
  
```

```

APPROVAL DATE: 05/16/90  DATE SENT NPRF:
DATE IMPLEMENTED:  DATE NPRF LOG #:
EXP COMP DATE: 08/31/91  NPRF UNIQUE #:
DATE CLOSED:  DATE SENT CMP:
(CMP)EN2#:
ANN RPT YR:
  
```

```

***** Please Complete This Section *****
PDC#      ORIGINATOR: PJParulis      SYSTEM NO: 2390A
NUMBER    RESP INDV: PJParulis      SFTY EVAL: Y
MP2-90-033  DEPT: Engineering
DATE OPENED: 04/06/90
TITLE: STORAGE CAGES AND LEAD SHEILD - AUX BLDG 38'6" EL
  
```

```

APPROVAL DATE: 08/29/90  DATE SENT NPRF: 03/18/91
DATE IMPLEMENTED: 12/01/91  NPRF LOG #: 91MPEZ2242
EXP COMP DATE:  NPRF UNIQUE #: 9113720034
DATE CLOSED: 03/06/91  DATE SENT CMP: 03/18/91
(CMP)EN2#: EN2-91-085
ANN RPT YR: 1990
  
```

COMMENTS: COMPLETE

```

***** Please Complete This Section *****
PDC#      ORIGINATOR: AKNorthrop      SYSTEM NO: 2307
NUMBER    RESP INDV: SLStadnick      SFTY EVAL: Y
MP2-90-034  DEPT: Engineering
DATE OPENED: 04/23/90
TITLE: CHECK VALVE RETAINING BLOCK STUD REPLACEMENT
  
```

```

APPROVAL DATE: 09/12/90  DATE SENT NPRF:
DATE IMPLEMENTED:  NPRF LOG #:
EXP COMP DATE: 12/31/92  NPRF UNIQUE #:
DATE CLOSED:  DATE SENT CMP:
(CMP)EN2#:
ANN RPT YR: 1990
  
```

COMMENTS: PARTIALLY IMPLEMENTED, 1992 OUTAGE (1/91)

```

***** Please Complete This Section *****
PDC#      ORIGINATOR: ELCrandell      SYSTEM NO: 23468
NUMBER    RESP INDV: SHStearns      SFTY EVAL: M
MP2-90-035  DEPT: I&C
DATE OPENED: 04/23/90
TITLE: DIESEL FUEL OIL SUMP LEVEL SWITCH MODIFICATION
  
```

```

APPROVAL DATE: 05/23/90  DATE SENT NPRF:
DATE IMPLEMENTED:  NPRF LOG #:
EXP COMP DATE: 08/31/91  NPRF UNIQUE #:
DATE CLOSED:  DATE SENT CMP:
(CMP)EN2#:
ANN RPT YR:
  
```

COMMENTS: WAITING INSTALLATION (10/90)

```

***** Please Complete This Section *****
PDC#      ORIGINATOR: PHBaumann      SYSTEM NO: 2315C
NUMBER    RESP INDV: PHBaumann      SFTY EVAL: Y
MP2-90-036  DEPT: Engineering
DATE OPENED: 04/27/90
TITLE: VITAL SWITCHGEAR COOLING VENTILATION GAGES
  
```

```

APPROVAL DATE: 05/30/90  DATE SENT NPRF: 02/21/91
DATE IMPLEMENTED: 08/10/90  NPRF LOG #: 91MPEZ2582
EXP COMP DATE:  NPRF UNIQUE #: 9112620014
DATE CLOSED: 01/28/91  DATE SENT CMP: 02/21/91
(CMP)EN2#: EN2-91-052
ANN RPT YR: 1990
  
```

COMMENTS: (GENERIC LETTER 89-13) COMPLETE

0239

==> INSTRUMENT & CONTROLS

<==

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PAGE 1 OF 2

PHMS ID: M2 02 FWC MSC FWC

WORK ORDER: M2 91 00078

LOCAL ID: FWC
 LOCAL SYS: 2410
 NPRDS: XX RELATED
 BLDG: ROOM:
 ELEV: 0000 FT 00 IN GRID:
 TR NO:
 P.O. NO:
 ACCOUNT:

=====

I	PRIORITY.....	3
I	AWD TYPE.....	DT
I	UNIT STATUS..	U MODE: 22
I	FREQUENCY.....	
I	SCHED START..	08 / 29 / 91
I	REQ COMPL.....	09 / 05 / 91
I	PROJ REF.....	

=====

EQUIP DESC: FEEDWATER CONTROL SYSTEM

PROBLEM DESC: TROUBLESHOOT #1 FEEDWATER CONTROL SYSTEM TO DETERMINE
 WHY THERE IS A BAD FEED FLOW SIGNAL ON FR-5301.

NOTE: FR-5301 CALIBRATION CHECK SAT

SUSP. CAUSE:

ORIGINATOR: J RITCHIE DEPT: I&C DATE: 03 / 29 / 91 TR TAG HUNG: N

CAT-1....: N	TAGGING: N	SECURITY..: N	QC REQ.....: N	CONVEX.....: N
EEQ.....: N	RWP REQ: N	FIRE WATCH: N	HOUSEKEEP.: N	PARTS LIST: N
FPQA.....: N	ALARA...: N	LLRT.....: N	CLEANNESS.: N	TOOL LIST.: N
RWQA.....: N	SHIELD..: ---	ISI.....: N	ASME CLASS: ---	STAGING....: ---
ATWSQA...: N	REWORK..: N	MCV TEST..: ---	ENC VOLUME: N	

PROCEDURES: EVAL:CD4699

CAUTION
 NOTES:

JOB TROUBLESHOOT TO DETERMINE CAUSE OF PROBLEM
 DESC:

<<<<<< WRITE SEPERATE AWD IF ANY REPAIRS ARE REQUIRED >>>>>>

TASK	DEPT	# WKR	MAN HR	TASK	DEPT	# WKR	MAN HR
1. TRPLSHOOT	I&C	----	-----	4.		----	-----
2.		----	-----	5.		----	-----
3.		----	-----	6.		----	-----

SUPERVISOR: _____

ASSIGN TO: _____

DEPT APPROVAL: U.R.DATE: 8/29/91

5/15/3

OPS PRE-APPROVAL: _____ TIME: _____ DATE: 8/29/91
 TRLSHT/FABRICATE ONLY

TAG CLEARANCE: _____ LCC: _____ DURATION: _____ JUMPER: _____

CPS APPROVAL: J.P. TIME: 1035 DATE: 9/29/91

SAMPLE RECORD OF ALLEGATION PANEL DECISIONS

SITE: Milk tone
ALLEGATION NO.: FL-91-A-0238
DATE: 9/24/91 (Panel No. 1 2 3 4 5)
PRIORITY: High Medium Low
SAFETY SIGNIFICANCE: Yes No Uncn
CONCURRENCE
TO CLOSEOUT: DD BC SC
CONFIDENTIALITY GRANTED: Yes No
(See Allegation Receipt Report)
IS THERE A HARASSMENT/DISCRIMINATION
ISSUE: Yes No
IF YES,
1) has the individual been informed of the DOL
process and the need to file a complaint within 30 days Yes No
2) has the individual filed a complaint
with DOL Yes No
3) has a letter been sent to the complainant seeking
any safety concerns Yes No
IS A CHILLING EFFECT LETTER WARRANTED: Yes No
IF YES, HAS IT BEEN SENT Yes No
HAS THE LICENSEE RESPONDED TO THE CHILLING
EFFECT LETTER: Yes No

ACTION:

- 1) Issue 1: close, one was PDCR, other was PDCE
- 2) Inspect and close issue 2
- 3) Issue 3 based on issue 2
- 4) ISSUE 4 Turnover to NY
- 5) ISSUE 5 Turnover to NY
- Issue 6 Inspect, individual didn't bother to get doc listed

NOTES:

5/15/94

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UNIT 2 I&C MEMO
MP-2-I-1882

September 6, 1991

To: R. A. Borchert
Reactor Engineer

From: *John D. Becker*
John D. Becker
I&C Manager - Millstone Unit 2
x5265

Subject: ICI Calibration Requirements

The purpose of this memo is to document the review that took place on the subject of ICI calibration requirements. This review was conducted in response to the question raised during an NRB audit activity. The question asked if our procedures adequately addressed calibration of the plant process computer voltage measurements, as the auditor was aware of problems related to proper analog to digital conversion on Unit 3.

System Design

Each ICI is a self powered neutron detector that has a positive and negative lead that is connected across a 100K precision resistor. The plant process computer monitors this voltage and converts it from an analog value to a digital value for use in the incore analysis program. This program generates outputs in the form of raw values, corrected values, alarms and calculations based on the voltage inputs.

Calibration Requirements

Tech. Spec 4.3.3.2.b states that the system shall be determined OPERABLE: "At least once per 18 months by performance of a CHANNEL CALIBRATION operation which exempts the neutron detectors but includes all electronic components. The neutron detectors shall be calibrated prior to installation in the reactor core."

Review of Design Features Requiring CHANNEL CALIBRATION

The ICI loops consist of the detector, the wiring to the computer room, the 100K ohm resistor, and the plant process computer monitors the voltage drop across the resistor.

1. The detectors are exempted from calibration by 4.3.3.2.b.

2. The wiring is not considered an electronic component as it has no adjustable characteristic and serves only to provide continuity. In addition, the resistance of the wire and its associated connections at the head, HACSS, containment

S/BS

penetrations and computer cabinet is insignificantly small in relationship to the resistance provided by the 100K ohm resistor. Continuity needs to be demonstrated during ICI installation activities.

3. The resistor performs an electronic function, but is not adjustable. A verification of proper resistance values is appropriate.
4. The plant process computer performs the actual measurement function and is adjustable. Verification that it responds with the necessary range and accuracy to known values is necessary.

Comparison of Calibration Requirements to Procedure Contents

- a. Wire Continuity - This is adequately addressed by section 7.2 of SP 2407.
- b. Resistor Verification - This is adequately addressed by section 7.1 SP 2407.
- c. Plant Process Computer Voltage Measurement - The current method for verifying the computer's voltage measurement is specified in C.S. 5.05, MP2 Integrated Computer System Analog Calibration Procedure. This is currently done as part of PM activities for the plant process computer and is done at a refuel frequency. The verification of the computer's ability to accurately measure the ICI voltage should be accomplished under a PORC approved procedure. The portion of the computer that perform this function was determined to be cabinets PC11 and PC13. As the voltage measurement range and accuracy for all channels in a cabinet is controlled both by individual cabinet and individual channel adjustments, the testing of each individual channel within a cabinet is required.

The review was conducted with the following I&C personnel:

T. Arnett
D. Vining
B. Salen
P. Smith
J. Becker

Additional input was gathered from:

D. Hildebrand
M. Parikh
R. Borchert

I'd appreciate your comments on the results of this review.
I have changed our calibration procedure to add a multipoint
check of the computer's voltage measurement performance.

c: J. W. Riley
J. S. Keenan

ALLEGATION MANAGEMENT SYSTEM

ALLEGATION NUMBER - RI-91-A-0238

RUN DATE: 09/11/91

DOCKET/FACILITY/UNIT: 05000336 / MILLSTONE 2
DOCKET/FACILITY/UNIT: /
DOCKET/FACILITY/UNIT: /
DOCKET/FACILITY/UNIT: /

/ 2
/
/
/

ACTIVITY TYPES - REACTOR

MATERIAL LICENSES -

FUNCTIONAL AREAS - OPERATIONS

DESCRIPTION - 1) PDCR NUMBER 2-90-035 WAS USED TWICE, DIFFERENT MODS
2) SHORTCOMINGS IN METHOS USED TO CAL ICI'S TO TRACEABLE STD
3) NU RESPONSE TO #2 DOESN'T ADDRESS ISSUE AND IS LATE
CONCERNS - 4) ONLY 2 OF 8 RAD MONITORS MET LINEARITY REQUIREMENTS
6 5) PROCEDURE 2404AW REV2 HAS NO ACCEPTANCE CRITERIA
6) DRAWINGS SHOW DIFFERENT TERMINATION POINTS FOR S/G FLOW
RECORDER/TRANSMITTER LOOPS

SOURCE - LICENSEE EMPLOYEE

CONFIDENT - NO

RECEIVED - 910829 BY - PJ HABIGHORST

/ RI

ACTION OFFICE CONTACT - EM KELLY

- (FTS)346-5183

SAFETY SIGNIFICANCE - UNKNOWN BOARD NOTIFICATION - NO

STATUS - OPEN SCHED COMPLETION - 920228 DATE CLOSED -

ALLEGATION SUBSTANTIATED -

ALLEGER NOTIFIED -

OI ACTION - OI REPORT NUMBER -

REMARKS - RECEIVED IN RESIDENT OFFICE BY MEMO AND UPDATE MEMOS.

SUPPORT OFFICE: RPS-4A
ACTION PENDING: CONVENE PANEL
DOCUMENTATION:
ALLEGER LAST CONTACTED: 29AUG91
REFERENCE:

KEYWORD: DRAWINGS, RAD MONITORS

ENTERED SYSTEM - 910903 CLOSED SYSTEM -

RECORD CHANGED - 910903

5/156

SAMPLE RECORD OF ALLEGATION PANEL DECISIONS

SITE: Millstone
ALLEGATION NO.: LI-91-0238 issue 2
DATE: 11 Sep 91 (Panel No. 1 2 3 4 5)
PRIORITY: High Medium Low
SAFETY SIGNIFICANCE: Yes No Unkn
CONCURRENCE
TO CLOSEOUT: DD BQ SC
CONFIDENTIALITY GRANTED: Yes No
(See Allegation Receipt Report)

PANEL ATTENDEES:
Chairman - Mehl
Branch Chief -
Section Chief (AOC) - Kelly
Sr. Allegation Coord (SAC) Fulmerstor
OI Representative - C. White
(Other) Shedlock ^{IT} Anderson
Donovan (OIG) Irish (OIG)

IS THERE A HARASSMENT/DISCRIMINATION
ISSUE:

Yes No

IF YES,

- 1) has the individual been informed of the DOL
process and the need to file a complaint within 30 days
- 2) has the individual filed a complaint
with DOL
- 3) has a letter been sent to the complainant seeking
any safety concerns

Yes No

Yes No

Yes No

IS A CHILLING EFFECT LETTER WARRANTED:

Yes No

IF YES, HAS IT BEEN SENT

Yes No

HAS THE LICENSEE RESPONDED TO THE CHILLING
EFFECT LETTER:

Yes No

ACTION:

- 1) INSPECT ICI surveillance requirements to determine
status vis-a-vis operability (DRP)
- 2) Determine acceptability of use of beyond cal voltage source
to bring information in for repanel and for
determination if basis exists for referral to OI
- 3) _____
- 4) _____
- 5) _____

NOTES:

9/15/91

RECORD OF ALLEGATION PANEL DECISIONS

SITE: Millstone 2 PANEL ATTENDEES:

ALLEGATION NO.: EI-91-A-0263 Chairman - Wrygms

DATE: 9 Oct 91 (Panel No. 1 2 3 4 5) Branch Chief -

PRIORITY: High Medium Low Section Chief (AOC) - Kelly

SAFETY SIGNIFICANCE: Yes No Unkn Sr. Allegation Coord (SAC) Fuhrmeister

CONCURRENCE TO CLOSEOUT: DD BC SC OI Representative -

CONFIDENTIALITY GRANTED: Yes No (Other) Anderson Barkley Conner
Shedlosky Frenette

IS THERE A HARASSMENT/DISCRIMINATION ISSUE: Yes No

IF YES,

1) has the individual been informed of the DOL process and the need to file a complaint within 30 days Yes No

2) has the individual filed a complaint with DOL Yes No

3) has a letter been sent to the complainant seeking any safety concerns Yes No

IS A CHILLING EFFECT LETTER WARRANTED: Yes No

IF YES, HAS IT BEEN SENT Yes No

HAS THE LICENSEE RESPONDED TO THE CHILLING EFFECT LETTER: Yes No

ACTION: RESP ECD

- 1) Add to letter referring issues on Reactor Coolant Pump instruments power supplies ask response
- 2) to address issues of:
 - 1) control of modifications to spare equipment
 - 2) control of cannabilization of spare equipment
- 3) _____
- 4) _____
- 5) _____

NOTES: _____

5/226

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ENCLOSURE

Concerns RI-91-A-0232-01 and RI-91-A-0263-01:

There were two examples of alleged inadequate control and maintenance of equipment spare parts. First, that a spare power supply in the warehouse (SPM 798, revision 16, item 34) for the "B" RCP lower oil reservoir level alarm unit allegedly did not receive a capacitor change out, as did the in-service power supply units. Allegedly, PMMS item M2-02-ENV-PWR-X-20 (Serial No. 10521) typified a maintenance history record for a power supply replacement. Second, that an RPS spare component, the Auxiliary Logic Drawer identified in Concern RI-91-A-0263-02, allegedly lacked a modification (three versus four amber indicating lamps).

Concern RI-91-A-0263-02:

Allegedly, a spare RPS Auxiliary Logic Drawer allegedly was used to support troubleshooting, on or about October 1, 1991, of a power supply relay failure within the same drawer in RPS channel "D," but was not installed in place of the failed drawer. Allegedly, the spare RPS Auxiliary Logic Drawer lacked some original parts (three lamps).

Concern RI-91-A-0232-02:

On or about August 16, 1991, Loop Folders for the "B" RCP oil reservoir alarm instruments allegedly did not reflect the actual physical location of specific power supplies. Allegedly, some boards had five separate power supplies within the power supply unit.

Concern RI-91-A-0232-03:

On or about August 16, 1991, Loop Folders for the "B" RCP allegedly did not provide information regarding which additional instrument loads powered from each power supply. For example, power supply X-21 supplied several other instrument loops in addition to the "B" RCP upper and lower oil sump levels. The individual doing the work believed this information was considered essential to preclude the loss of power to other instrumentation when performing maintenance on an instrument loop component.

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Concern RI-91-A-0232-04:

On or about August 16, 1991, Instrument Record Sheets for the "B" RCP upper and lower oil reservoir level transmitters (LT-176 & LT-177) allegedly were missing from the Instrument Loop Folders.

Concern RI-91-A-0232-05:

There were allegedly nuisance alarms, associated with the "B" RCP upper and lower oil reservoirs, caused by mechanical action within the RCP oil reservoirs (reference AWO M2-91-08614).

Request:

Please provide your review of the above assertions. If the above conditions are valid, notify us of the corrective actions you have taken to prevent recurrence. Also provide us with an assessment of the safety significance of any identified deficiencies, including generic considerations.

In addition to the above general request, please provide your review of the following specific questions. Are spare parts, that are either located in the warehouse(s) or used for troubleshooting, controlled and maintained in accordance with the NU QA Program? Is there a mechanical problem with RCP oil sump levels? Does Unit 2 administratively control I&C documentation in a manner consistent with the methodology used for Units 1 and 3 and with the NU QA Program? Is Departmental Instruction 2-I&C-10.03, Establishing and Maintaining Instrument Records, adequate for administrative control of I&C documentation? In general, do loop folders adequately identify instrument loads for each power supply?



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

91-91-H-0236

(21)

Dec 6, 1991

Docket Nos. 50-245
50-336
50-423

License Nos. DPR-61
DPR-65
NFP-49

Mr. John F. Opeka
Executive Vice President, Nuclear
Northeast Nuclear Energy Company
P. O. Box 270
Hartford, Connecticut 06141-0270

Dear Mr. Opeka:

Subject: Combined Inspection Nos. 50-245/91-19, 50-336/91-23 and 50-423/91-19

On September 23-28, 1991 an announced, safety inspection of your September 26, 1991, emergency preparedness exercise and other emergency preparedness activities was conducted by Mr. C. Amato and other members of this office. The inspection was conducted at your Millstone Nuclear Power Station, Waterford, Connecticut, and at your offices in Berlin, Connecticut. In addition, the inspection was continued during the period October 7-30, 1991 at the NRC RI office in King of Prussia, Pennsylvania to permit evaluation of documentation obtained during the on-site portion of the inspection and to review your corrective actions taken in response to the Unusual Event declared as a result of Hurricane Bob. Discussions of our findings were held by Mr. Amato with your staff at the conclusion of the on-site portion of the inspection.

The exercise demonstrated the ability of the Millstone Station and Corporate staffs to take timely and adequate protective measures on behalf of public health and safety. Corporate staff exhibited excellent response to scenario accident conditions. An adequate emergency preparedness program was maintained, and no exercise weaknesses were identified. Although no violations were identified, an unresolved item is discussed in Section 7.4.4 of the enclosed inspection report.

9/11/96

9112240058-411

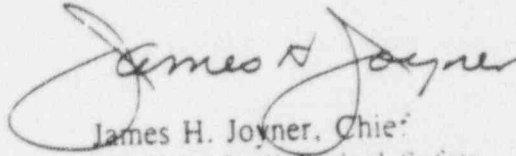
DEC 06 1991

Northeast Nuclear Energy Company

2

No reply to this letter is required. Thank you for your cooperation.

Sincerely,



James H. Joyner, Chief
Facilities Radiological Safety
and Safeguards Branch
Division of Radiation Safety
and Safeguards

Enclosure:

Combined Inspection Report Nos. 50-245/91-19, 50-336/91-23 and 50-423.91-19

cc w/encl:

W. Romberg, Vice President, Nuclear Operations
D. Nordquist, Director of Quality Services
R. Kacich, Manager, Nuclear Licensing
S. Scace, Nuclear Station Director
H. Haynes, Nuclear Unit Director
C. Clement, Nuclear Unit Director
G. Garfield, Esquire
N. Reynolds, Esquire
K. Abraham, PAO (2)
Public Document Room (PDR)
Local Public Document Room (LPDR)
Nuclear Safety Information Center (NSIC)
NRC Resident Inspector
State of Connecticut
U. S. FEMA-I

Northeast Nuclear Energy Company

3

DEC 06 1991

bec w/encl:

Region I Docket Room (w/concurrences)

Management Assistant, DRMA (w/o encl)

D. Jaffe, PM, NRR

J. Williams, PM, NRR

E. Wenzinger, DRP

E. Kelly, DRP

W. Raymond, SRI, Millstone

A. Asars, SRI, Haddam Neck

R. Arrighi, DRP

R. Lobel, EDO

DRS SALP Coordinator

DRSS SALP Coordinator

J. Joyner, DRSS

RI-91-A-0219

RI-91-A-0128

RI-91-A-0228

RI-91-A-0046

RI-91-A-0236

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos. 50-245/91-19
50-336/91-23
50-423/91-19

Docket Nos. 50-245
50-336
50-423

License Nos. DPR-61
DPR-65
NPF-49

Licensee: Northeast Nuclear Energy Company
P. O. Box 270
Hartford, Connecticut 06101-0270

Facility Name: Millstone Nuclear Power Station

Inspection Conducted: September 23-28, 1991 and October 7-30, 1991

Inspection At: Berlin, Connecticut; Waterford, Connecticut; and King of
Prussia, Pennsylvania

Inspectors: C. G. Amato 11/27/91
C. G. Amato, Emergency Preparedness date
Specialist, Region I

D. Dempsey, Resident Inspector, Millstone Point Plant
P. Habighorst, Resident Inspector, Millstone Point Plant
K. Ihnen, Operations Engineer (Examiner)
J. Jamison, NRC Contractor
K. Kolaczyk, Resident Inspector, Millstone Point Plant
W. Raymond, Senior Resident Inspector, Millstone Point Plant
G. Vissing, NRC Licensing Project Manager

Approved: E. McCabe 11/27/91
E. McCabe, Chief, Emergency date
Preparedness Section, Division
of Radiation Safety and Safeguards

Areas Inspected: Safety inspection of the licensee's full-participation emergency preparedness exercise, and of the emergency preparedness program. Program areas inspected included Emergency Plan and Implementing Procedure changes, training, audits and reviews, maintenance of emergency response facilities, public information, off-site activities, and responses to situations requiring emergency classification.

Results: No exercises weaknesses were identified. The exercise demonstrated the licensee's ability to take timely and adequate protective measures on behalf of public health and safety. Corporate staff exhibited excellent response to scenario accident conditions. An adequate emergency preparedness program was maintained. No violations were identified. An unresolved item, involving the extent of training given to operators on the simulator that includes classifying scenarios at the Site Area Emergency and higher levels, is discussed in Section 7.4.4.

NUSCO's Production Operation Services Laboratory.

The inspector discussed alternate information sources to supply site MET data if needed. No alternate was specified other than SODAR, a doppler acoustic sounding system. There are alternate sources of MET data available including: the Norwalk Harbor tower, about 50 miles west of the site; the New London/Groton airport tower, which also failed; the licensee's meteorological consultant in Massachusetts, who's facility also lost power; and Connecticut River Valley MET tower near Middletown (different topography).

SODAR is located adjacent to the EOF and is still being evaluated. It was selected as a substitute for a very high conventional tower so the sea breeze effect could be estimated. SODAR will measure wind speed and direction, has an equivalent height of 700 feet, and computes stability category (the vendor has never disclosed the algorithm for this). SODAR determines stability category, but this determination cannot be inputted into the dose projection programs, which require temperature differences. The dose assessment staff must, using tables, determine the temperature differences and manually enter these values. The software then redetermines the stability category. The antennae resemble a ship's ventilator. SODAR received power from the EOF, but cannot generate data during periods of high wind speeds and heavy rain, such as experienced during the hurricane. SODAR output cannot deduce A or G stability categories and it is biased in favor of stable conditions, particularly F stability category. The inspector was orally advised by the licensee that SODAR is under evaluation and has not been accepted as a backup to the MET tower. However, page 7-16 of the licensee's emergency plan, dated October 15, 1990, states that "SODAR ... provides backup meteorological data" and "will be used by the on-call corporate meteorologist for data interpretation and prediction". In addition, NE-91-RA-550, a report on the use of SODAR, concludes that the use of SODAR is questionable as it has critical limitations. The licensee's emergency plan is not consistent with the above statements. The use of SODAR as a backup needs to be resolved. This item will be reviewed in a future inspection.

The last means of determining MET data during the Hurricane would have been to conservatively estimate the conditions using either the last available data, or by physically observing the MET conditions and developing estimates. These estimates could then be inputted into TRS-80 dose calculation method (PUFF was also lost, see below). Details for doing these calculations are given in an implementing procedure.

The inspector concluded that the licensee could have performed dose projections if necessary using the TRS-80 dose calculation method and by estimating MET data. However, the maintenance of the MET tower, particularly regarding the backup power, does not appear acceptable. Additionally, the potential use of SODAR to provide backup MET appears to have critical limitations that would not make it an adequate backup to the MET tower.

The mainframe computer in Wethersfield was lost due to power failure. This led to a loss of the Offsite Information System (OFIS) which includes the Environmental Data Acquisition System (EDAN) software. PUFF, the mainframe dose projection model was also lost. OFIS is designated by NU as a Category A software program because of its importance to financial liability in the event of a declared emergency and the ability to transmit accident management information. The mainframe also operates the plant maintenance and health physics records systems. The Plant Process Computer supplies data to the mainframe via communication controllers. Data is inputted to data sets and modified by software into frames (or screens) which can be sent to all mainframe terminals. There are 12 or 13 frames for OFIS. Data is transmitted by the NU microwave system, backed up by land lines. The mainframe is supplied by two, 200 volt, 3 phase lines coming in from different sources. Motor generators provide the 400 Hz needed for computer operation. There are no uninterruptible power supplies (UPS) or other backup power sources. The mainframe failed once before during a hurricane. To improve reliability following this failure, a static switch was installed. This switch would transfer from a de-energized line to an energized line automatically and rapidly. During the recent hurricane, when the normal power was lost due to downed lines, the static switch transferred to the other source. After a while it retransferred to the de-energized source and stayed there, thereby causing the mainframe to fail.

To guard against mainframe failure, NU has also installed a backup computer in its Berlin headquarters. This computer is an IBM 4381 and is known as the B computer. This machine is generally idle and the mainframe and the B computer are not operated in parallel. In order to run in parallel, all communications from the Plant Process Computer would have to be duplicated. This requires both hardware and software changes. To switch to the B computer, communications are switched to it and a number of Wethersfield staff go to Berlin. Switchover can take from one to four hours. This switchover process is proceduralized in the Disaster Recovery Procedures, dated 7/1/91. Five disaster categories are specified which establish recovery priorities. Category A was not declared since an Alert or higher classification was not declared or justified. The Information Resource Group (IRG) was asked to reconfigure the system but not to do so immediately. Personnel were not sent to Berlin. Following this incident, approval was given to install a UPS and a backup power supply at Wethersfield.

If OFIS is down, the alternate data transmission possibilities are voice and facsimile. During the hurricane, while OFIS was down, three Data Coordinators were in each control room to facilitate the transfer of information if needed.

The Safety Parameter Display System (SPDS) was functional, but there are no terminals outside of the control rooms except in the TSC. SPDS data are transmitted to the EOF and CEOC by OFIS. It should be noted that the NRC Emergency Response Data System, although not yet operational, will interface with OFIS as the Plant Process Computer cannot accept any more tasks.

OFIS availability measured at the main frame is as follows:

OFIS DATA AVAILABILITY (%)

	<u>MP1</u>	<u>MP2</u>	<u>MP3</u>
1987:	-	70.3	91.9
1988:	77.8	76.6	91.8
1989:	88.8	72.3	90.2
1990:*	93.5	91.5	94.3

* to 9/6/90

The above data indicates Unit 3 was consistently available for greater than 90% of the time. OFIS was available for greater than 90% for Units 1 and 2 for only 1 of the last four years. OFIS design specifications call for an availability of 98% during plant operations (Modes 1, 2 and 3). This specification is traceable to NUREG-0696 regarding high availability of SPDS during operation. However OFIS must be available during all operating modes as well as during declared emergencies. The above data indicates OFIS failed to meet the licensee specifications 43% of the time. The inspector was unable to identify any apparent reason for the discrepancies in availability between the units. This area will be review in a subsequent inspection.

Based upon the above review, this portion of the licensee's program is acceptable.

10.0 Site Evacuation and Access During Emergencies

10 CFR 50.47(b)(10) requires protective action for emergency workers and the public. Related guidance is given in Evaluation Criteria J.1 to J.5 in NUREG-0654. To determine if adequate protective procedures are in place to ensure protective actions for non-essential personnel, the inspector reviewed the emergency plan and implementing procedures and security procedures, pertinent lesson plans, and interviewed security personnel.

All unescorted personnel entering the protected area must satisfactorily complete General Employee Retraining or it equivalent. In addition, fitness-for-duty rules apply and all other security checks and procedures apply as well. Staff augmentation