

U.S. NUCLEAR REGULATORY COMMISSION

REGION 1

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Facility: Millstone Nuclear Power Station, Unit 2

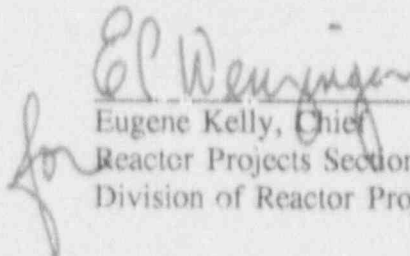
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1/13/92
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Scope: Special inspection of concerns brought to the licensee by the NRC. This report is a continuation of the special inspection described in NRC Inspection Report 50-245/91-23 and 50-336/91-27. It included the observations and evaluations during conduct of surveillance and calibration activities and review for adequacy of maintenance procedures and procedure control issues.

Inspection Results: See Executive Summary

EXECUTIVE SUMMARY

MILLSTONE UNIT 2 INSPECTION 91-29

MAINTENANCE AND SURVEILLANCE

There were several observations related to the consistency of interpretation and implementation of Quality Assurance program requirements. These represent both strengths and weaknesses, and are summarized as follows:

Technicians generally completed surveillance tests in a thorough and diligent manner. However, several instances were noted in which the surveillance procedure steps were not done as required. These were evaluated as not functionally significant, but were examples of a lack of attention to detail regarding procedural compliance. Additionally, one instance was observed in which personnel failed to independently verify the installation of a jumper, as required by administrative control procedures.

I&C Technicians appropriately stopped and obtained a procedure change when a surveillance procedure could not be done as written. This was a strength.

Several examples of weakness in the content of surveillance procedures were observed. Some of the required biennial reviews and revisions of surveillance procedures were not done in a timely manner. Additional emphasis was required in the validation of procedures to detect and correct errors prior to the approval process.

A weakness was that I&C management did not always ensure I&C technicians had documentation of qualification prior to making surveillance test assignments. There was no safety significant instance of unqualified personnel doing surveillance testing.

I&C Technicians demonstrated a high level of skill and knowledge during the conduct of surveillance testing. This was a strength.

Review and approval of departmental instructions was not adequately defined and clearly understood such that all departments consistently implemented applicable requirements.

One violation was issued concerning the aggregate of nine instances in which personnel failed to follow procedures.

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DETAILS

1.0 PERSONS CONTACTED

Interviews and discussions were conducted with members of Northcoast Nuclear Energy Company management and staff as necessary to support inspection activity. A list of persons contacted is attached.

2.0 QUALIFICATION OF I&C TECHNICIANS

The inspector reviewed the I&C Department process for identifying the qualification status of I&C Technicians.

Assessment

ACP-QA-8.27, section 5.3.1, requires department heads (or their designees) to ensure "department personnel have completed required training and are formally qualified prior to performing associated activities." I&C Instruction 1.11 describes the on-the-job training (OJT) program for Unit-2 I&C Department personnel. OJT qualification of I&C Department personnel encompasses knowledge, training, and evaluation phases. For example, OJT Guide M2-TT-ICCT-NISFMS-T02010 is designed to be used in conjunction with the like numbered knowledge requirement evaluation guide for wide range nuclear instrumentation (WRNI) functional test SP 2401B. Upon successful completion of OJT requirements, the OJT Coordinator was required to send the original OJT Guide to the Training Department.

The Nuclear Training Department maintains a computer based Individual Qualification Matrix and other training records. The qualification matrix is a cross reference depicting areas of qualification for specific individuals. The I&C Department OJT coordinator maintains a wall chart that graphically delineates each I&C Technician's qualification status. I&C management stated they used the qualification matrix as a reference when assigning I&C Technicians to perform work.

The inspector found no instance of an Unit-2 Technical Specification (TS) required surveillance test being done without the presence of a qualified I&C Technician. When questioned by the inspector, there were several instances, however, in which I&C management was uncertain if the assigned technician had the requisite qualification.

This had probably occurred because the department personnel were judged by the inspector as generally having a high level of qualifications.

Conclusions

I&C management has not always adequately ensured that I&C Technicians completed required training and were therefore formally qualified prior to doing assigned surveillance testing activities.

The "SURVEILLANCE TESTING" section of this report contains detailed assessments and conclusions regarding specific surveillance tests.

3.0 SURVEILLANCE TESTING

Administrative Control Procedure ACP-QA-3.02E, section 6.2, stated that "full and total compliance is expected" for those procedures used to do surveillance and testing as specified in the Unit-2 Technical Specifications. The inspector observed surveillance testing as described in the following.

3.1 Surveillance 2401B-1: Wide Range Nuclear Instrumentation

Nuclear instrumentation at Millstone Unit 2 includes excore and incore neutron flux detectors. Ten channels of excore instrumentation monitored neutron flux and provided reactor protection and control signals during startup and power operation. Four of those channels are Gamma Metrics wide range nuclear instrumentation (WRNI) designed to monitor reactor power from source range to above 100 percent power. Unit-2 Technical Specifications (TS) requires a minimum of two WRNI channels to be operable in mode 6 during operations involving core alteration or positive reactivity change and in modes 3, 4 and 5. Functions of the WRNI includes monitoring reactor power and removing the reactor protection system (RPS) zero power mode bypass above 10⁴ percent power.

The NRC provided a number of concerns to the licensee related to WRNI at Millstone Unit 2. The concerns related to intermittent spiking of the WRNI, I&C procedures for this equipment, and related matters. NRC disposition of those concerns involved providing the concern to NNECO for review and resolution, with subsequent NRC evaluation to ensure the adequacy of NNECO's actions. Four NNECO letters (A09163, A09557, A09768, and A09807) describe NNECO's review of those concerns.

NRC Inspection Report 50-245/91-23 and 50-336/91-27 (IR 91-27), section 7.2, described a number of concerns regarding the accuracy of as-built conditions shown in drawings. IR 91-27 concluded, in part, there were weaknesses in NNECO's coordination of vendor information into controlled drawings.

The purpose of this (50-336/91-29) inspection of the WRNI at Unit 2 was to evaluate the adequacy of resolution of the purported spiking problem, review representative I&C procedures, observe surveillance testing and inspect related issues.

a. Intermittent Spiking

Background

Until July 1991, intermittent WRNI "spiking" occurred. Spiking was a condition involving spurious indication by a WRNI channel. Inspection Report 50-336/90-22, section 5.3.3, documented an NRC inspection of WRNI spiking that occurred during the 1990 refueling outage. That report concluded NNECO met Technical Specification requirements and adequately monitored core conditions.

Assessment

According to NNECO letter A09163, dated December 21, 1990, NNECO implemented during 1989 and 1990 a total of six AWOs to troubleshoot and resolve the WRNI spiking problem. The Production Maintenance Management System (PMMS) listed AWOs M2-90-05376, M2-90-11146, and M2-90-11791 as examples of such efforts.

NNECO did a WRNI operability evaluation December 12, 1990. Although that evaluation was in response to environmental qualification concerns of detector cable assemblies, it discussed the requirements for operability which were applicable to a potentially degraded WRNI channel. Plant Operations Review Committee (PORC) concurred with that operability evaluation, as documented in meeting minutes PORC 2-90-192.

A review of the PMMS data for 1990 and 1991 indicated there were no open work orders related to resolution of the WRNI spiking problem. The last instance of completed work regarding the WRNI spiking problem was documented in AWO-M2-91-06141, July 1, 1991 and there were no WRNI spiking problems reported since that date. The problem was corrected by rebuilding a spare instrument drawer using the best available circuit cards. Since the equipment is obsolete, the licensee was tasked with selecting these from new warehouse spares, or from cards located in the spare or original drawer. Following maintenance, the spare drawer was calibrated and tested in accordance with SP 2401B and IC 2417I.

The PMMS listed various work orders, unrelated to the spiking problem, planned for the WRNI system. For example, repair of the spare WRNI drawer and replacement of the Gamma Metrics cable assemblies for WRNI channels B and D. Also, NNECO stated that because the original vendor of the WRNI drawers no longer supported that equipment, NNECO was considering a plant design change that would replace the WRNI drawers with new units in approximately 1993.

The inspector discussed WRNI spiking with I&C and Operations management personnel. They indicated the WRNI spiking problem appeared to be resolved. Also, they stated the WRNI system was successfully used in the past five months during plant startup.

Conclusions

Based on review of PMMS data, AWO-M2-91-06141 and the December 12, 1990, WRNI operability evaluation, discussion with cognizant NNECO personnel, and observation of WRNI

functional testing, the inspector concluded NNECO adequately resolved the WRNI spiking problem.

b. Status of Procedures for WRNI I&C Work

The inspector reviewed the status of various procedures used to do I&C work on the WRNI.

Assessment

The inspector identified and did a general review of one surveillance procedure (SP) and five maintenance (IC) procedures that applied specifically to the WRNI. They were SP 2401B, IC 2416G, IC 2417C, IC 2417D, IC 2417H, and IC 2417I. NNECO revised two of these procedures (SP 2401B and IC 2417H) based on the procedure upgrade program, while three were in the upgrade process, and IC 2417I was not upgraded. NNECO stated its intent was to upgrade all such PORC approved procedures by the end of 1992.

The biennial review of IC 2416G was overdue. ACP-QA-3.02D, section 6.1.1, required a periodic, systematic review of Station Procedures required by ACP-QA-3.02. ACP-QA-3.02, section 6.2.3, included 2400 series SP or IC procedures. In a quarterly memorandum (MP-91-918), dated November 1, 1991, Document Services identified the last biennial review date for IC 2416G and IC 2417C as September 1, 1987, and August 1, 1989, respectively. I&C management stated I&C Department records indicated the last date for the biennial review of those procedures was September 1989 and December 1990, respectively.

ACP-QA-3.02, section 6.8.1, noted a general rule that "after three changes have been made to any procedure, a revision should be written to incorporate those changes." Procedure IC 2417I had four changes and form IC 2417I-1 had six changes. The I&C Department was aware of the need to revise IC 2417I. The I&C Department priority order for procedure revision was the following: "problem" procedures, surveillance procedures, radiation monitor procedures, procedures with more than three changes, and numerical order.

Conclusions

Based on review of applicable procedures, the inspector concluded that procedures for WRNI I&C work were adequate and that NNECO was in the process of improving those procedures.

All biennial reviews were not completed as required by ACP-QA-3.02D. This was a violation of NRC requirements (VIO-50-336/91-29-01).

Also, because some Document Services and I&C Department records of biennial reviews differed, the inspector questioned if NNECO tracked biennial reviews in accordance with ACP-QA-3.02D, section 6.3. NNECO agreed to evaluate this matter, take appropriate action as necessary, and respond to the NRC.

c. Conduct of WRNI Surveillance 2401B-1

November 13, 1991, the inspector observed the conduct of Unit-2 surveillance 2401B-1 that was done under AWC M2-91-12287. Since the reactor was in mode 5, TS required performance of SP 2401B. The purpose of routine weekly surveillance 2401B-1 was to verify operability of all four WRNI channels.

Assessment

With the following two exceptions noted for WRNI channel A, the I&C Technician successfully completed surveillance 2401B-1 in a thorough and diligent manner. First, step 6.1.17.2 required removal of fuses F1 and F2 on the power supply mounting plate. Only fuse F1 was removed. The I&C Technician doing the surveillance stated that, in this case, removal of only fuse F1 was adequate to achieve the expected result (de-energization of the wide range detector high voltage power supply).

The inspector noted that drawing J178-0010, Interconn Schematic Wide Range Channel NLW3, revision k, indicated fuses F1 and F2 were for the power feeds to ungrounded power supplies PS1 and PS2. Therefore, the procedural requirement may have been based on personnel safety in dealing with an ungrounded power supply.

Second, step 6.1.19 was done before step 6.1.18 and the procedure did not allow steps to be done out of sequence. The inspector discussed the above exceptions with the I&C Technician and the I&C Technician agreed the inspector's observations were factually correct. Subsequently, surveillance of WRNI channels B, C, and D was done in accordance with SP 2401B and I&C Form 2401B-1.

The inspector discussed the preceding exceptions with I&C and Quality Services Division (QSD) management. QSD stated that it noted similar exceptions in other procedures during the on-going procedure compliance program.

An additional issue concerning surveillance 2401B-1 was the completeness with which the procedure required checking control room annunciator responses during the surveillance. The procedure appropriately checked panel C04 annunciator window A12B, NIS Channel INOP, during step 6.1.8.1. The procedure did not check that panel C04 annunciator window A12B cleared at step 6.1.10. There were other steps (e.g., 6.1.17.1 and 6.1.17.6) that actuated or cleared panel C04 annunciator window A12B, but the procedure did not require an annunciator status check for each actuation and reset condition. Also, section 6.1 of the procedure did not require checking all affected annunciators (e.g., panel C04 annunciator window C12A, CH 'A' Wide Range Extended Range C.P.S.).

Conclusions

Based on observation of the conduct of surveillance testing done using SP 2401B and review of completed I&C Forms 2401B-1, the inspector concluded that NNECO adequately completed surveillance 2401B-1 on November 13, 1991. The two noted exceptions had no significant

technical bearing on the final result, but they were examples of lack of attention to detail regarding procedural compliance as required by ACP-QA-3.02E. The failure to follow procedure SP 2401B is a violation of NRC requirements (VIO-50-336/91-29-01).

The completeness of annunciator response checks in SP 2401 and I&C Form 2401B-1 may not be adequate. NNECO agreed to evaluate this matter, take appropriate action as necessary, and respond to the NRC.

The I&C Technician demonstrated a high level of skill and knowledge during the conduct of this surveillance. The inspector considered this to be a strength.

d. Qualification of I&C Technicians

To sample the OJT qualification status process, the inspector requested NNECO to produce for inspection the qualification records for the I&C Technician who did SP 2401B-1 November 13, 1991. Records existed to confirm this person was the only I&C Technician who had documentation of qualification to do this surveillance.

Due to illness, the SP 2401B-1 qualified individual was not at MP2 December 3, 1991, when SP 2401B-1 was done by another I&C Technician. At approximately 1314 hours, while in the MP2 Control Room on an unrelated inspection, the inspector briefly observed performance of SP 2401B-1 under AWO M2-91-12853. The inspector questioned I&C management if the second I&C Technician had documentation of qualification to do SP 2401B-1. I&C management stated the I&C Technician, as shown by the qualification matrix, did not have documentation of qualification to do SP 2401B-1. A Supervising Control Operator log book entry at 1400 hours indicated completion of SP 2401B-1. After completion of SP 2401B-1, I&C management initiated an I&C Form 2450-6, Justification For Use of Individual Not Having Documented Qualification, for the person who did AWO M2-91-12853.

The inspector reviewed the I&C training folder for the I&C Technician who did AWO M2-91-12853 and discussed the I&C Technician qualification process with the Nuclear Training Department (NTD). According to NTD records, the I&C Technician who did AWO M2-91-12853 had appropriate qualifications to do that work. The inspector also reviewed documentation of qualification status for other I&C Technicians, as subsequently described in this report section.

The inspector noted that department procedure IC 2450, section 6.6.2.3, required an annual proficiency review in accordance with ACP-QA-8.16 for level II certified I&C personnel. However, ACP-QA-8.27 and ACP-QA-8.29 superseded ACP-QA-8.16 on February 1, 1991. Procedure IC 2450 has not yet been revised to delete the requirement for proficiency reviews.

Conclusions

Based on inspection of I&C Department and NTD qualification records for several individuals and review of applicable procedures, the inspector concluded the I&C Department did not adequately maintain and use the qualification matrix in all cases to determine the qualification status of I&C Technicians. Also, administrative requirements for I&C personnel certification in IC 2450 were not entirely consistent with the currently applicable ACPs. NNECO agreed to evaluate this matter, take appropriate action as necessary, and respond to the NRC.

3.2 Surveillance 2401F-1: Reactor Protection System High Power Trip

The Reactor Protection System high power trip (RPS-HPT) test is a surveillance to ensure operability of the variable high power trip calculator, the nuclear power - delta T power max select unit, and their associated functions.

a. Conduct of Surveillance Testing

The inspector observed the conduct of surveillance 2401F-1, for RPS-HPT channels A and B, done December 4, 1991, under AWO M2-91-11846. This surveillance was done by two I&C Technicians using a reader-doer method.

Assessment

MP2 TS 3.3.1.1 requires a minimum of three operable RPS-HPT channels in modes 1, 2, and 3, except when all control rod drive mechanisms are de-energized or when the RCS boron concentration exceeds the specified refueling concentration. To demonstrate operability of the RPS-HPT when in modes 1, 2, or 3 (with reactor trip breakers closed), MP2 TS Table 4.3-1 includes requirements for a channel check once per 12 hours, and a channel calibration and a channel functional test once per 31 days. The channel calibration and the channel functional test were done using SP 2401F and Form 2401F-1. MP2 was in mode 5 and this surveillance was done as a pre-start check, since plant startup was anticipated within one week.

The inspector observed the conduct of the surveillance test. With the following five exceptions regarding procedure steps either being done out of sequence or not being done exactly as specified, I&C Technicians successfully completed surveillance 2401F-1 for RPS-HPT channels A and B in a thorough and diligent manner. First, "as left" data for step 6.1.3 was mistakenly recorded in the wrong location on the data sheet for Channel A. This data was appropriately recorded later. Second, steps 6.2.1 through 6.2.4 for Channel B were not done in the specified sequence. Third, for Channel A, recording of data at step 6.4.11 was inadvertently omitted. Later, the step was repeated and data was recorded. Fourth, for Channel B, the high power level trip bistable was not reset in step 6.4.11. Fifth, for Channel B, the CPC #2 test probe was restored to its storage position at step 6.4.2 rather than at step 6.10.7.

Additionally, Step 6.8.4.2 could not be done as written and the step was appropriately bypassed after discussion among the I&C Technicians and their supervisor. ACF-QA-3.02E, sections 6.2.4 and 6.2.5, allowed the appropriate first line supervisor to waive the requirement for procedure steps to be done in sequence provided there was no modification or compromise of procedure intent. This step is an annunciator check that could not be done in mode 5 since other bistables also caused this alarm condition. The I&C Department initiated AWO M2-91-13090 to ensure this step would be done prior to plant startup. The provisions of ACP-QA-3.02E for allowing minor deviations from approved procedures was addressed in NRC inspection report 50-336/90-84, section II.C.2.

Nomenclature used in SP 2401F and Form 2401F-1 did not cause significant confusion or errors, but there were several instances of inconsistent or imprecise nomenclature. ACP-QA-3.02A, section 6.10, requires (in part) the use of consistent nomenclature and component labels. The following are examples of either inconsistent or imprecise nomenclature.

<u>Procedure/Step</u>	<u>Component Label</u>
Procedure SP 2401F	
6.3.2 Channel A	CHANNEL 5
Channel B	CHANNEL 6
6.8.2 Q	PR RANGE RPS
Q Trip	SETPOINT LEVEL
6.8.7.2 Pre-Trip	HI POWER
Procedure Form 2401F-1	
6.8.4.3/ RPS Hi Pwr Trip Ann.	NIS HI PWR TRIP CH A
6.11 @ C04	(@ C04/C4A)

Opportunities for improvement of SP 2401F were noted. These were not necessarily regulatory requirements but constituted enhancements that the I&C Technicians agreed would be helpful. The following two examples typify such improvement opportunities. First, there was no specific guidance for sliding out the channel drawers. When pulling out the Channel B drawer to do step 6.3.7, cables at the rear of the drawer became slightly caught. The I&C Technicians anticipated this, used appropriate technique, and no problem resulted. By comparison, SP 2401B, step 6.1.6, provided specific guidance to watch the cables at the rear of a drawer. Second, step 6.10.4 required resetting "all" channel A (B,C,D) pre-trips or trips if plant conditions allowed. It was not clear if this step intended that each and every pre-trip or trip bistable device should be reset or just those associated with SP 2401F. The I&C Technicians made a list of such potential procedure enhancements for future evaluation by I&C management.

Conclusions

Based on observation of 2401F-1 surveillance testing, the inspector concluded that NNECO adequately completed surveillance 2401F-1 for channels A and B on December 4, 1991. The

noted exceptions had no significant technical bearing on the final result, but they were examples of lack of attention to detail regarding procedural compliance as required by ACP-QA-3.02E. The failure to follow approved procedures is a violation of NRC requirements (VIO-50-336/91-29-01).

A strength was noted to be stopping the surveillance and changing a procedure step that was deficient, as described preceding. This was an appropriate action in accordance with applicable requirements. Initiating an AWO to ensure a deferred step in a procedure would be completed at a later date was an additional example of appropriate action.

The lead I&C Technician demonstrated a high level of skill and knowledge during the conduct of this surveillance. The inspector considered this to be a strength.

Based on review of SP 2401F and Form 2401F-1, plant walkdown, and observation of surveillance testing, the inspector concluded nomenclature for surveillance 2401F-1 was generally adequate. Further, the inspector concluded nomenclature inconsistencies and inaccuracies, such as the examples identified in this report, should have been identified and corrected during the biennial procedure review, as required by ACP-QA-3.02D, section 6.1.2.a.

b. Qualification of I&C Technicians

The inspector reviewed the qualification status and supporting documentation of the lead I&C Technician who did surveillance 2401F-1 on December 4, 19⁰¹

Assessment

ACP-QA-8.27, section 5.3.1, required department heads (or their designees) to ensure "department personnel have completed required training and are formally qualified prior to performing associated activities." The inspector reviewed applicable records in the Nuclear Training and I&C Departments. Documentation existed to show the qualification status for this individual.

Conclusions

Based on review of relevant documentation and observation of surveillance testing, the inspector concluded this individual was appropriately qualified as required by ACP-QA-8.27.

3.3 Surveillance 2404AI: Steam Generator Blowdown Liquid Process Radiation Monitor

The Steam Generator Blowdown Liquid Process Radiation Monitor (SGBDM) is a system to monitor gross gamma activity in the blowdown liquid effluent to the environment. Upon high radiation or device failure, the SGBDM is designed to automatically alarm and close six valves associated with this system.

a. Conduct of Surveillance Testing

Surveillance testing is required to ensure operability of the SGBDM. MP2 TS 3.3.3.9 requires a minimum of one operable SGBDM channel in mode 6 when the pathway is being used and in modes 1, 2, 3, 4, and 5. To demonstrate operability of the SGBDM, MP2 TS 4.3.3.9 requires a channel check once per 12 hours, a source check once per 31 days, a channel calibration once per 18 months, and a channel functional test once per 92 days. The channel check and functional test were done using SP 2404AI and I&C Form 2404AI-1.

Assessment

The inspector observed the conduct of surveillance 2404AI-1, under AWO M2-91-11452, on December 4, 1991. With the following two exceptions regarding procedure steps either being done out of sequence or not being done exactly as specified, I&C Technicians successfully completed surveillance 2404AI in a thorough and diligent manner. First, step 6.6.2 required a reset of the "HIHI and Fail Alarms." This was not done. Second, step 7.4 was done after step 7.5.

Step 6.1.1 would not work as written and the I&C Technician appropriately stopped the surveillance and initiated a procedure change. Regarding the local alarm horn bypass key switch, the procedure stated "ON" rather than "OFF."

The interior of Control Room panels is not labeled to clearly identify each major section, such as C05F. Steps 6.6.1 and 6.6.11 involved installation of a jumper at C05F, terminal strip TEH, between points 5 and 6. Lack of a label for panel C05F increased the difficulty of verifying correct jumper installation and removal. The inspector questioned how I&C Technicians ensure they accurately identify the interior of Control Room panel sections. NNECO agreed to evaluate this matter, take appropriate action as necessary, and respond to the NRC.

ACP-QA-2.06C, section 6.2, contained instructions for controlling jumpers. In part, ACP-QA-2.06C required independent verification of jumpers for quality related systems and documentation of jumpers on SF 235 or an equivalent form. I&C Form 2404AI-1 was equivalent to SF 235, but there was no specific reminder for the technicians to do independent verification of jumper installation and removal stated on IC 204AI-1. The inspector used the PMMS to determine the SGBDM was a quality assurance (QA) category I system and, therefore, jumper installation and removal required independent verification. Appropriately, I&C Form 2404AI-1 had a place to record a second initial (independent verification) for jumper installation and removal in SP 2404AI steps 6.6.1 and 6.6.11, respectively. ACP-QA-2.20, section 6.1.2, required (in part) that "Verifier independence must be maintained to ensure the integrity of the independent verification by minimizing interactions between individuals." The I&C Technicians did SP 2404AI step 6.6.1 together, one acting as installer and the other as verifier.

When questioned by the inspector if applicable ACPs required independent verification of steps 6.6.1 and 6.6.11, the I&C Technicians were uncertain if verification of those steps had to be independently done. The I&C Technicians appropriately did an independent verification of SP 2404AI step 6.6.11.

The Nuclear Training Department (NTD), when questioned by the inspector, stated that the Combined Administration Course did not include the independent verification requirements described in ACP-QA-2.06C, sections 6.2.2 and 6.2.3. This was an applicable requirement that the NTD intended to include in the lesson plan(s) for the Combined Administration Course. NNECO agreed to incorporate applicable requirements from ACP-QA-2.06C in the Combined Administration Course and remind i&C technicians about independent verification requirements.

Conclusions

Based on observation of 2404AI-1 surveillance testing, the inspector concluded that NNECO adequately completed surveillance 2404AI-1 on December 4, 1991. The noted exceptions had no significant technical bearing on the final result, but they were examples of lack of attention to detail regarding procedural compliance as required by ACP-QA-3.02E. The failure to follow approved procedures is a violation of NRC requirements (VIO-50-336/91-29-01).

Also, based on observation of 2404AI-1 surveillance testing, review of applicable procedures, and discussion with NTD and I&C Department personnel, the inspector concluded independent verification of jumper installation and removal was not done as required by ACP-QA-2.06C. In this case, there was no safety significance because the Unit was in mode 5 and the jumpers were correctly installed and removed. The failure to follow approved procedures is also a violation of NRC requirements (VIO-50-336/91-29-01).

A strength was noted to be stopping the surveillance and changing a procedure step that was deficient, as described preceding. This was an appropriate action in accordance with applicable requirements.

The lead I&C Technician demonstrated a high level of skill and knowledge during the conduct of this surveillance. The inspector considered this to be a strength.

b. Status of Procedures For SGBDM I&C Work

The inspector did a general review of SP 2404AI and I&C Form 2404AI-1.

Assessment

Nomenclature used in SP 2404AI and I&C Form 2404AI-1 did not cause significant confusion or errors, but there were several instances of inconsistent or imprecise nomenclature. ACP-QA-3.02A, section 6.10, requires (in part) the use of consistent nomenclature and component labels. The following were examples of either inconsistent or imprecise nomenclature.

<u>Procedure/Step</u>	<u>Component Label</u>
Procedure SP 2404AI	
5.1 Secondary Sample lines HV-4287 and HV-4288	HS 4287(88) STM. GEN. NO. 1 B.D. SAMPLE LINE CONTR. VALVE
6.3.9 HIHI	ALARM
6.6.5 High	ALARM

Opportunities for improvement of SP 2404AI were noted. These were not necessarily regulatory requirements but constituted enhancements that the I&C Technicians agreed would be helpful. The I&C Technicians made a list of such potential procedure enhancements for future evaluation by I&C management. The following were examples of such improvement opportunities.

- Reference 3.4 is incomplete. The correct reference was NNFCO drawing 25203-26025, sheet 1.
- Prerequisites do not include checking the position ("CLOSE," "N," or "OPEN") of the hand switches for valves HV-4287 and HV-4288, but this activity actually was done.
- Step 6.2.2 is unclear regarding the need to record a numerical value or to only note an upscale response.
- It was unclear as to the meaning of the phrase "If the As Found data is within 50% of the specified tolerance, then RECORD the data in the As Left column and go to Step ..." stated in steps 6.4, 6.5, 6.7, and 6.8 because the step does not involve a process variable.
- Step 6.6.12 requires removal of the local alarm bypass key. It was uncertain if key removal was possible with out first turning on the local alarm bypass key.
- Step 7.3 is not specific regarding which alarms to check.
- I&C Form 2404AI-1, page 3, does not provide units of measure for desired values.
- I&C Form 2404AI-1, page 4, indicates jumper installation at panel C05, rather than the more specific location C05F.

The most recent biennial review of SP 2404AI was done in July 1991.

Conclusions

Based on review of SP 2404AI and I&C Form 2404AI-1, plant walkdown, and observation of surveillance testing, the inspector concluded nomenclature for surveillance 2404AI-1 was

adequate. Further, the inspector concluded nomenclature inconsistencies and inaccuracies, such as the examples identified in this report, should have been identified and corrected during the biennial procedure review, as required by ACP-QA-3.02D, section 6.1.2.a.

c. Qualification Status of I&C Personnel

The inspector reviewed the qualification status of I&C Technicians assigned to do surveillance 2404A1.

Assessment

I&C Management assigned, in AWO M2-91-11452, a lead technician to do surveillance 2404A1-1 who had appropriate documentation of qualification to do this surveillance, as shown on the qualification matrix. Surveillance 2404A1-1 was done using a reader - doer method. The "qualified" technician was the reader and lead technician for this surveillance. A second I&C technician, who was a contractor not qualified to perform the test alone, assisted with the surveillance.

Conclusions

The inspector concluded the I&C Department adequately used the qualification matrix to determine the qualification status of I&C Technicians prior to making the work assignment for AWO M2-91-11452.

3.4 Surveillance 2404AN-1: Spent Fuel Pool Area Radiation Monitor

The Spent Fuel Pool Area Radiation Monitor (SFPARM) is a system to monitor radiation levels in the spent fuel pool area. Alarm signals on two of four SFPARM channels actuate the auxiliary exhaust actuation signal (AEAS).

a. Conduct of Surveillance Testing

Surveillance testing is required to ensure operability of the SFPARM. MP2 TS 3.3.3.1 required a minimum of two operable SFPARM channels when there is fuel in the storage building. To demonstrate operability of the SFPARM, MP2 TS 4.3.3.1 requires a channel check once per 12 hours, a channel calibration once per 18 months, and a channel functional test once per 31 days. The channel functional test is done using SP 2404AN and Form 2404AN-1.

Assessment

The inspector observed the conduct of surveillance 2404AN-1, for channel D, under AWO M2-91-12502, on December 9, 1991. I&C Technicians successfully completed surveillance 2404AN-1 in a thorough and diligent manner.

Conclusions

Based on observation of 2404AN-1 surveillance testing, the inspector concluded that NNECO adequately completed surveillance 2404AN-1 on December 9, 1991.

The I&C Technicians demonstrated a high level of skill and knowledge during the conduct of this surveillance. The inspector considered this to be a strength.

b. Status of Procedures For SFPARM I&C Work

The inspector did a general review of SP 2404AN and Form 2404AN-1.

Assessment

Opportunities for improvement of SP 2404AN were noted. These were not necessarily regulatory requirements but constituted enhancements that the I&C Technicians agreed would be helpful. The I&C Technicians made a list of such potential procedure enhancements for future evaluation by I&C management. The following are examples of such improvement opportunities.

- Step 7.1.1 does not require checking annunciator C01/D32, although this was actually done.
- The procedure does not clearly indicate which control room annunciators required checking and does not use nomenclature that exactly matched the annunciator window. For example, steps 7.2.3, 7.2.5.1, and 7.2.7 are actually associated with annunciator windows C06/D23A, C01/D29, and C06/D23B, respectively, but the procedure does not use specific annunciator window numbers.
- The radiation monitor alarm arming had to be reset before resetting emergency safeguards actuation system, but step 7.2.8 does not indicate sequence is significant.
- Step 7.2.9 requires removal of the bypass key switches, but does not indicate a desired position for the switches.
- Form 2404AN-1, does not provide units of measure for as found and as left meter indications. Units of measure are appropriately provided for specified values and acceptance criteria.

The biennial review of IC 2404AN was overdue, as of December 10, 1991. ACP-QA-3.02D, section 6.1.1, required a periodic, systematic review of Station Procedures required by ACP-QA-3.02. ACP-QA-3.02, section 6.2.3, included 2400 series SP or IC procedures. In a quarterly memorandum (MP-91-918), dated November 1, 1991, Document Services identified the last biennial review date for IC 2404AN as December 1, 1989.

ACP-QA-3.02, section 6.8.1, noted a general rule that "after three changes have been made to any procedure, a revision should be written to incorporate those changes." Procedure IC 2404AN had five changes. The I&C Department was aware of the need to revise IC 2404AN.

Conclusions

All biennial reviews were not completed in a timely manner as required by ACP-QA-3.02D. The failure to follow approved procedures is a violation of NRC requirements (VIO-50-336/91-29-01).

Based on review of SP 2404AN and Form 2404AN-1, plant walkdown, and observation of surveillance testing, the inspector concluded SP 2404AN and Form 2404AN-1 were adequate. Further, the inspector concluded there were opportunities for improvement, such as the examples identified in this report, that should have been identified and corrected during the biennial procedure review, as required by ACP-QA-3.02D, section 5.1.2.a.

c. Qualification Status of I&C Personnel

The inspector reviewed the qualification status of I&C Technicians assigned to do surveillance 2404AN.

Assessment

I&C Management assigned, in AWO M2-91-12502, a technician to do surveillance 2404AN-1 who had no formal documentation of qualification to do this surveillance, as shown on the qualification matrix. ACP-QA-8.27, section 5.3.1, required department leads (or their designees) to ensure "department personnel have completed required training and are formally qualified prior to performing associated activities." Surveillance 2404AN-1 was done using a reader - doer method. The "unqualified" technician was the reader and lead technician for this surveillance. A second technician, who was appropriately qualified, actually did the surveillance.

Conclusions

The inspector concluded the I&C Department did not adequately use the qualification matrix to determine the qualification status of I&C Technicians prior to making the work assignment for AWO M2-91-12502. This was not functionally significant because a qualified technician actually did the surveillance.

3.5 Surveillance 2404AZ-1: Control Room Area Radiation Monitor

The Control Room Ventilation Area Radiation Monitor (CRVARM) is a system to monitor gross radiation activity in the Control Room ventilation supply duct. Alarm signals from either of two CRVARM channels are designed to isolate the Control Room ventilation system and initiate Control Room air recirculation.

a. Conduct of Surveillance Testing

Surveillance testing is required to ensure operability of the CRVARM. MP2 TS 3.3.3.1 requires a minimum of one operable CRVARM channel in all modes. To demonstrate operability of the CRVARM, MP2 TS 4.3.3.1 requires a channel check once per 12 hours, a channel calibration once per 18 months, and a channel functional test once per 31 days. The channel functional test was done using SP 2404AZ and I&C Form 2404AZ-1.

Assessment

The inspector observed the conduct of surveillance 2404AZ-1, under AWO M2-91-12515, on December 10, 1991. I&C Technicians successfully completed surveillance 2404AZ-1 in a thorough and diligent manner.

Step 6.2 involves temporary installation of an extender module to facilitate access to the readout module. For both channels, installation of the readout module at step 6.2.3 resulted in burned out bulbs for the green operate lights in the readout module. The inspector questioned if the burned out bulbs were a coincidence or an indication of some hardware malfunction. NNECO agreed to evaluate the matter, take appropriate action as necessary, and respond to the NRC.

Conclusions

Based on observation of 2404AZ-1 surveillance testing, the inspector concluded that NNECO adequately completed surveillance 2404AZ-1 on December 10, 1991.

The lead I&C Technician demonstrated a high level of skill and knowledge during the conduct of this surveillance. The inspector considered this to be a strength.

b. Status of Procedures For CRVARM I&C Work

The inspector did a general review of SP 2404AZ and I&C Form 2404AZ-1.

Assessment

The biennial review of SP 2404AZ was overdue, as of December 10, 1991. ACP-QA-3.02D, section 6.1.1, requires a periodic, systematic review of Station Procedures required by ACP-QA-3.02. ACP-QA-3.02, section 6.2.3, included 2400 series SP or IC procedures. In a quarterly memorandum (MP-91-918), dated November 1, 1991, Document Services identified the last biennial review date for SP 2404AZ as December 1, 1989.

ACP-QA-3.02, section 6.8.1, notes a general rule that "after three changes have been made to any procedure, a revision should be written to incorporate those changes." Procedure SP 2404AZ had four changes. The I&C Department was aware of the need to revise SP 2404AZ.

Conclusions

All biennial reviews were not completed in a timely manner as required by ACP-QA-3.02D. The failure to follow approved procedures is a violation of NRC requirements (VIO-50-336/91-29-01).

Based on review of SP 2404AZ and I&C Form 2404AZ-1, plant walkdown, and observation of surveillance testing, the inspector concluded SP 2404AZ and I&C Form 2404AZ-1 were adequate.

c. Qualification Status of I&C Personnel

The inspector reviewed the qualification status of I&C Technicians assigned to do surveillance 2404AZ.

Assessment

I&C Management assigned, in AWO M2-91-12515, a technician to do surveillance 2404AZ-1 who had appropriate documentation of qualification to do this surveillance, as shown on the qualification matrix. Surveillance 2404AZ-1 was done using a reader - doer method. The "qualified" technician was the reader and lead technician for this surveillance. A second I&C technician, who was a contractor not qualified to perform the test alone, assisted with the surveillance.

Conclusions

The inspector concluded the I&C Department adequately used the qualification matrix to determine the qualification status of I&C Technicians prior to making the work assignment for AWO M2-91-12515.

3.6 Surveillance 2402I-1: Low Temperature/Over Pressure Circuitry

The Low Temperature/Over Pressure Circuitry (LT/OP) is a system designed to help prevent brittle fracture of the RCS.

a. Conduct of Surveillance Testing

Surveillance testing is required to ensure LT/OP operability. MP2 TS 3.4.9.3 requires an over pressure protection system to be operable when RCS cold leg temperature is at or below 275°F. To demonstrate operability of the LT/OP, MP2 TS 4.4.9.3.1 requires a channel calibration once per 18 months, and a channel functional test once per 31 days. The channel functional test was done using SP 2402I and I&C Form 2402I-1.

Assessment

The inspector observed the conduct of surveillance 2402I-1, under AWO M2-91-12265, on December 11, 1991. I&C Technicians successfully completed surveillance 2402I-1 in a thorough and diligent manner.

Conclusions

Based on observation of 2402I-1 surveillance testing, the inspector concluded that NNECO adequately completed surveillance 2402I-1 on December 11, 1991.

The I&C Technicians demonstrated a high level of skill and knowledge during the conduct of this surveillance. The inspector considered this to be a strength.

b. Status of Procedures For LT/OP I&C Work

The inspector did a general review of SP 2402I and I&C Form 2402I-1.

Assessment

Nomenclature used in SP 2402I and I&C Form 2402I-1 did not cause significant confusion or errors, but there were several instances of inconsistent or imprecise nomenclature. ACP-QA-3.02A, section 6.10, required (in part) the use of consistent nomenclature and component labels. The following were examples of either inconsistent or imprecise nomenclature.

<u>Procedure/Step</u>	<u>Component Label</u>
SP 2402I	
6.1.1.3 LOW TEMPERATURE/OVER PRESSURE	LT/OPT-115/P-103-1 LO/HI
6.1.8 RESET TO LOW	RESET LT/OP 2-RC-402 SELECTOR SW TO HIGH
4.5.2 HS-1402 (RC-402 LT/OP Setpoint Selector)	RC 402 LT/OP SETPOINT SELECTOR
4.5.3 HS-111 (Loop 1 Temp Rcdr Sel Sw)	TEMP RCDR SEL SW

The biennial review of IC 2402I was overdue, as of December 11, 1991. ACP-QA-3.02D, section 6.1.1, requires a periodic, systematic review of Station Procedures required by ACP-QA-3.02. ACP-QA-3.02, section 6.2.3, includes 2400 series SP or IC procedures. In a quarterly memorandum (MP-91-918), dated November 1, 1991, Document Services identified the last biennial review date for IC 2402I as December 1, 1989.

ACP-QA-3.02, section 6.8.1, notes a general rule that "after three changes have been made to any procedure, a revision should be written to incorporate those changes." Procedure SP 2404I had five changes. The I&C Department was aware of the need to revise SP 2404I.

Opportunities for improvement of SP 2402I were noted. These are not necessarily regulatory requirements but constitute enhancements that the I&C Technicians agreed would be helpful. The I&C Technicians made a list of such potential procedure enhancements for future evaluation by I&C management. The following are examples of such improvement opportunities.

- Step 6.2.2 does not remind the control room operators that an alarm will sound when opening the C09 Fire Panel, although the I&C Technician actually did so notify the control room operators.
- The control room operators and I&C Technicians believed it was more appropriate to do step 6.1.21 after step 6.1.22 when restoring LT/OP to normal status. A similar comment applies to steps 6.2.21 and 6.2.22.
- Steps 6.1.2.1, 6.1.6.1, 6.1.11.1, and 6.1.15.1 for Facility 1, and comparable steps for Facility 2, are not structured in accordance with ACP-QA-3.02A. Placement of a second tier conditional action statement (applicable when the unit was shutdown) under a first tier conditional action statement that applies when the unit is "on line" caused confusion.
- Step 6.2.21 contains incorrect valve numbers. The listed valves relates to Facility 1. The correct valve numbers for Facility 2 were 2-SI-634, 2-SI-644, and 2-SI-652.

Conclusions

The biennial review of SP 2404I was not completed in a timely manner, as required by ACP-QA-3.02D. The failure to follow approved procedures is a violation of NRC requirements (VIO-50-336/91-29-01).

Based on review of SP 2402I and I&C Form 2402I-1, plant walkdown, and observation of surveillance testing, the inspector concluded SP 2402I and I&C Form 2402I-1 were adequate, except for the incorrect valve numbers given in step 6.2.21. NNECO stated that a procedure change would be initiated to correct this problem. Further, the inspector concluded nomenclature inconsistencies and inaccuracies, such as the examples identified in this report, and other enhancements should have been identified and corrected during the biennial procedure review, as required by ACP-QA-3.02D, section 6.1.2.a.

c. Qualification Status of I&C Personnel

The inspector reviewed the qualification status of I&C Technicians assigned to do surveillance 2402I.

Assessment

I&C Management assigned, in AWO M2-91-12265, technicians to do surveillance 2402I-1 who had appropriate documentation of "interim" qualification to do this surveillance, as shown on the qualification matrix. Surveillance 2402I-1 was done using a reader - doer method. When asked if an interim qualified technician should be assigned to do a surveillance, I&C management was not certain of applicable requirements.

In subsequent discussions with NNECO personnel, the inspector determined that interim qualified personnel can do surveillance testing prior to the end of 1992. By the end of 1992, interim qualified personnel have to either receive an evaluation, and training if necessary, or lose their qualified status. If their evaluation is satisfactory, they will become fully qualified.

Conclusions

Based on review of applicable documentation and discussion with cognizant I&C management personnel, the inspector concluded the I&C Department did not adequately use the qualification matrix to determine the qualification status of I&C Technicians prior to making the work assignment for AWO M2-91-12265.

3.7 Surveillance 2405A-1: Seismic Events System

Inspection Report 50-245/91-23 and 50-336/91-27, section 4.0, described an inspection of the Seismic Events System (SES). This (50-336/91-29) was a follow-up inspection of SES surveillance testing and procedure adequacy.

a. Conduct of Surveillance Testing

Surveillance testing is required to ensure SES operability. MP2 TS 3.3.3.3 requires seismic instrumentation monitoring channels to be operable in all modes. To demonstrate operability of the SES Time History Accelerographs (THAs), MP2 TS 4.3.3.3 requires a channel check once per 31 days, a channel calibration once per 18 months, and a channel functional test once per six months. The channel check was done using SP 2405A and I&C Form 2405A-1.

Assessment

The inspector observed the conduct of surveillance 2405A-1, under AWO M2-91-12487, on December 12, 1991. With the following exception regarding procedure steps being done out of sequence, I&C Technicians successfully completed surveillance 2405A-1 in a thorough and diligent manner. Steps 6.7.9.1 through 6.7.9.4 were not done in the listed order.

Step 6.5.3 contains an incorrect branch to step 6.8 and does not require recording of as left data. The correct branch is to step 6.7. The I&C Technician appropriately stopped the surveillance and initiated a procedure change.

Conclusions

Based on observation of 2405A-1 surveillance testing, the inspector concluded that NNECO adequately completed surveillance 2405A-1 on December 12, 1991. The noted exception had no significant technical bearing on the final result, but was an example of lack of attention to detail regarding procedural compliance as required by ACP-QA-3.02E. The failure to follow approved procedures is a violation of NRC requirements (VIO-50-336/91-29-01).

The SES THAs operated in a satisfactory manner during this surveillance.

A strength was noted to be stopping the surveillance and changing a procedure step that was deficient, as described preceding. This was an appropriate action in accordance with applicable requirements.

The lead I&C Technician demonstrated a high level of skill and knowledge during the conduct of this surveillance. The inspector considered this to be a strength.

b. Status of Procedures For SES I&C Work

The inspector did a general review of SP 2405A and I&C Form 2405A-1.

Assessment

Nomenclature used in SP 2405A, Figures 9.1 and 9.2, did not match in all cases the component label. This did not cause any error. ACP-QA-3.02A, section 6.10, requires (in part) the use of consistent nomenclature and component labels. NNECO agreed to initiate a procedure change to correct Figures 9.1 and 9.2, as appropriate.

Opportunities for improvement of SP 2405A were noted. These are not necessarily regulatory requirements but constitute enhancements that the I&C Technicians agreed would be helpful. The I&C Technicians made a list of such potential procedure enhancements for future evaluation by I&C management. The following are examples of such improvement opportunities.

- Step 6.7.1 installs test leads in the Battery Voltage Test Jacks, but no step requires removal of the test leads.
- The note above step 6.11.1 is confusing because step 6.11.6 is part of the data evaluation section
- Step 6.11.6 is related to verification of SES operability, but is structured as a second tier action statement under data evaluation.

Conclusions

Based on review of SP 2405A and I&C Form 2405A-1, plant walkdown, and observation of surveillance testing, the inspector concluded SP 2405A and I&C Form 2405A-1 were adequate, except for revision of Figures 9.1 and 9.2, as described preceding.

c. Qualification Status of I&C Personnel

The inspector reviewed the qualification status of I&C lead Technician assigned to do surveillance 2405A.

Assessment

I&C Management assigned, in AWO M2-91-12487, a lead technician to do surveillance 2405A-1 who had appropriate documentation of qualification to do this surveillance, as shown on the qualification matrix. Surveillance 2405A-1 was done using a reader - doer method. A second I&C technician, who was a contractor not qualified to perform the test alone, assisted with the surveillance.

Conclusions

The inspector concluded the I&C Department adequately used the qualification matrix to determine the qualification status of I&C Technicians prior to making the work assignment for AWO M2-91-12487.

4.0 I&C DEPARTMENT INSTRUCTIONS

4.1 Review and Approval of I&C Department Instructions

The inspector reviewed two I&C Department Instructions that were generally related other issues examined during this inspection.

Background

TS 6.8.1 requires that "written procedures be established, implemented and maintained" for applicable procedures recommended in Appendix A of Regulatory Guide (RG) 1.33, February 1978. TS 6.8.2 requires PORC review and MP2 Superintendent approval of each MP2 procedure and administrative policy of TS 6.8.1. RE 1.33 Appendix A, item 8.b, requires procedures "for each surveillance test, inspection, or calibration listed in the Technical Specifications." For example, SP 2401B is a TS required procedure that appropriately had PORC review and MP2 Superintendent approval.

The Northeast Utilities Quality Assurance Program Topical Report (RH), section 5.2.1, assigned responsibility to each NNECO organization for the "preparation, review and approval of procedures covering quality activities in accordance with individual license requirements." RH Appendix C is a list of typical quality assurance related procedures that included Nuclear

Operations Department (NOD) procedures and other documents. NODs are defined to be documents "issued by the Vice President - Nuclear Operations having general and continuing applicability and establishing the responsibility for performing and the requirements governing quality related activities of the Nuclear Operations Department." For example, NOD-1.02 and NOD-1.03 are associated with 10 CFR Part 50, Appendix B, Criterion V, Procedures, Instructions, and Drawings. NOD-1.01 assigns responsibility for Millstone Station operation, maintenance, modification, refueling and services to the Millstone Station Superintendent. The Millstone Station Superintendent uses Administrative Control Procedures (ACPs) as the system for administration of Millstone Station.

Assessment

ACP-QA-1.01 allows Department Heads to issue Department Instructions "to implement specific non-QA administrative departmental functions." Also, ACP-QA-1.01 precludes use of Department Instructions for any requirements covered by Station Procedures. Station Procedures are "Procedures written on a Unit and Services Group level controlling the specifics of Station operations, including specifications; maintenance and modification; periodic test, inspection, calibration and special processes; and plan/equipment operating procedures."

Certain I&C Department Instructions, such as I&C Instructions 1.11 and 3.01, appeared to contain administrative policies that may require PORC review and MP2 Superintendent approval in accordance with ACP-QA-3.02, section 6.7. For example, I&C Instruction 1.11 provides guidance for the conduct of the I&C OJT program. Another example is I&C Instruction 3.01 which provides amplifying guidance for preparing and handing PORC/SORC approved procedures and defines a specific method for accomplishing biennial procedure reviews. The I&C Department Manager approves I&C Instructions 1.11 and 3.01. The inspector found no clearly defined requirement for PORC review and MP2 Superintendent approval of I&C Instructions 1.11 and 3.01. Comparable procedures in other departments have PORC review and MP2 Superintendent approval, for example:

- OP 2251, Plant Equipment Operator Retraining, revision 5, 3/21/90
- OP 2253, Biennial Procedure Review Rules, revision 1, 1/28/83
- MP 2701T, Training, Certification and Identification of Qualified Testing Personnel, revision 0, 6/29/88
- EN 21060, Engineering Department Training (Unit 2), revision 7, 12/27/85

Conclusions

The inspector concluded I&C Department Instructions 1.11 and 3.01 are adequate, but requirements for their review and approval may not have been adequately established in governing documents. The inspector questioned if the requirements regarding SORC/PORC review and Station/Unit Superintendent approval of departmental instructions are adequately defined and clearly understood such that all departments consistently implemented applicable requirements. NNECO agreed to evaluate this matter, take appropriate action as necessary, and respond to the NRC.

4.2 Control of I&C Department Instructions

The inspector reviewed the adequacy of certain aspects of document control related to I&C Department Instructions.

Assessment

ACP-QA-3.03, section 6.1.1, required maintenance by the Office Supervisor of Master Document Indices (MDIs). MDIs were the official list of approved Millstone Station procedures, instructions, design documents and their latest approved revisions. The inspector reviewed the MDIs for Unit-2 in the North Administration Building (NAB) Document Services files and found no current index of I&C Department Instructions. The NAB Document Services files contained indices of I&C Department Instructions ranging from April 27, 1976 to January 26, 1982. Discussion with Document Services and I&C personnel confirmed the NAB Document Services office files did not contain current indices of I&C Department Instructions.

I&C Department management stated that because ACP-QA-3.02, section 6.2.3, does not specifically list departmental instructions, MDIs for I&C Instructions are not considered to be Millstone Station Procedures. Thus, the I&C Department maintained MDIs for I&C Instructions within the Department and not at Document Services. The I&C Departments for Unit-1 and Unit-3 do use Document Services for maintenance of I&C Instructions.

Conclusions

The I&C Departments at Millstone Units 1, 2, and 3 did not use the same method of control for I&C Instructions. The inspector believed this inconsistency may have been due to a lack of clarity in applicable requirements. NNECO agreed to evaluate this matter, take appropriate action as necessary, and respond to the NRC.

5.0 REVIEW OF INSTRUMENTATION AND CONTROL PROCEDURES

The inspector evaluated the adequacy of the review process for certain instrumentation and control procedures.

Assessment

Administrative Control Procedure ACP-QA-3.02 establishes the requirements for controlling the identification, review, approval, changes and revisions, and distribution of procedures and forms. ACP-QA-3.02, section 6.2.3 assigns responsibility for preparation, revision, and change of 2400 series instrument and control procedures to the I&C Manager.

I&C Instruction 3.01 states the I&C Manager approved a list of names indicating the I&C person with primary responsibility ("owner") for each PORC/SORC approved I&C procedure. Also, I&C Instruction 3.01 assigns responsibility to the PMMS Planner for maintenance of the procedure owner list.

I&C Instruction 3.01, section 5.1.3, requires the procedure owner to do certain steps during procedure change or revision. For SP 2401B and its associated I&C forms, the inspector found several instances during 1990 and 1991 in which the procedure owner apparently did not do the assigned step(s) since the owner concurrence block had "N/A" or another persons initials. For example, the Change Routing Sheet for SP 2401B-2, dated July 2, 1991, has "NA" in the owner concurrence block and a Revision Routing Sheet for SP 2401B has "N/A" in the walkthrough owner initial block.

As previously described in this report, ACP-QA-3.02E, section 6.2, required "full and total compliance" with the procedures specified in ACP-QA-3.02, section 6.1, which referenced RE 1.33. It is not certain that I&C Instruction 3.01 is in that class of procedures for which "full and total compliance" was required.

The inspector found no specific guidance within I&C Instructions or ACPs or NODs regarding assumption of responsibilities for procedure owners or the use of "N/A" in lieu of procedure owner initials. NOD 1.01, section 6.2, does not address assumption of responsibilities for individuals other than key supervisors in the Nuclear Operations Division. With regard to definition of responsibility, the Procedure Review Board states in PCU-89-010, dated February 10, 1989, that the responsibility/ instruction section in an NEO procedure "Identifies, by title, the individual(s) required to perform specific actions covered by the procedure. Inherent in these responsibilities is the right of the identified individual to delegate the authority to perform a required action to a subordinate, while accountability for the action is retained by the identified individual."

Conclusions

There is no clearly defined requirement for full and total compliance with I&C Instruction 3.01. Consequently, when making changes or revisions to procedures, the steps assigned to procedure owners occasionally are either not appropriately documented or done by others. NNECO agreed to evaluate this matter, take appropriate action as necessary, and respond to the NRC.

6.0 MAINTENANCE

6.1 Maintenance Procedure Changes

February 11, 1991, a concern was identified that changes were made to PORC approved Maintenance Form 2720A3-1, "Cathodic Protection Data Sheet," without going to PORC for change approval. Specifically, the approved data sheet was changed to allow recording of data in blocks for OG1, OG2, OG3, and OG4. The blocks in question had been lined through and were not to be used. NNECO responded to this concern in a letter to the NRC dated August 30, 1991.

Assessment

NNECO indicated in its response to the NRC that changes were, in fact, made to Maintenance Form 2720A3-1 without the necessary approvals. In the case of a non-intent change, the change could have been made with the approval of the Shift Supervisor and another licensed Senior Reactor Operator. The change would then have had 14 days to be presented to PORC for final approval. NNECO also stated that the individuals involved in making the changes would be counseled concerning the proper procedure for changing forms and procedures.

In the case of the Cathodic Protection System, procedure MP 2720A3 correctly identifies the number of anode amperage values to be recorded. Therefore, there is no procedure compliance issue. However, the data recording blocks for OG1 through OG4 on Maintenance Form 2720A3-1, revision 1, were not correctly spaced and data had to be recorded on blank portions of the form. The discrepancy on the form was immediately identified by the Maintenance Supervisor upon discovery by an MP2 electrician. Since the system was not safety-related and there were potentially other problems with the maintenance procedure and forms, NNECO decided to review the entire set of procedures and forms before processing any revision for Maintenance Form 2720A3-1.

In its response to the NRC, NNECO stated that a draft change was prepared to correct the problem with the maintenance procedure and form discussed above. This change, the governing procedure, and the maintenance form were reviewed by the Corrosion Control Engineering Group at NNECO's corporate headquarters to ensure the proper data and acceptance criteria were required by the procedure and forms.

NNECO also stated in its response that the guidance contained in administrative procedure ACP-QA-3.02 was found to be "somewhat vague in dealing with issues which allow a judgement call concerning procedure compliance;" and that the wording of this procedure will be changed to provide more definitive guidance for situations such as those discussed above.

The inspector discussed the status of the changes mentioned above with various NNECO personnel, they are as follows:

a. Maintenance Form 2720A3-1

The changes correcting the problem discussed above were made and approved. The revised form became effective October 30, 1991.

b. Maintenance Procedure 2720A3

Comments made by the Corrosion Control Engineering Group were being incorporated into the procedure.

c. Administrative Procedure ACP-QA-3.02

The procedure was revised and was to be issued for review on or before November 1, 1991.

Conclusions

The inspector concluded that NNECO took the necessary actions to correct the problem identified by this concern.

6.2 Improper Use of Torque Wrench

On February 13, 1991, a concern was expressed that during review of Maintenance Procedure (MP) 2720R8 it was noted that there may have been inadequate instruction on the use of a torque wrench and crows foot to establish the proper torque on valves having Namco Seal Connectors. Specifically, the procedure did not indicate that unless the crows foot was used at a 90 degree angle to the torque wrench, over torquing may occur unless corrections were made to the specified torque value. NNECO responded to this concern in a letter to the NRC dated August 9, 1991.

Assessment

NNECO reviewed MP 2720R8, "Namco Seal/Connector Assembly Installation," the manufacturer's installation manual, and the Automated Work Orders (AWOs) that installed the Namco Seal Connectors. The procedure and the installation manual both specified a torque range of 45 to 55 ft-lbs for installing the Namco Connector receptacle to the Namco limit switch housing. All of the AWO Inspection Plans specified a torque range of 45 to 50 ft-lbs for the receptacle installation. These torque values were verified by a QSD inspector.

The AWO also identified the torque wrench that was used during the installation. Based on dimensions taken from the torque wrench and crows foot (from the Namco Connector Installation Tool Kit), NNECO did a calculation to determine the maximum amount of over torquing that could have occurred. Assuming the maximum torque specified on the Inspection Plan was the actual setting on the torque wrench, then the maximum torque that was applied to the receptacle/limit switch housing was 58 ft-lbs.

NNECO contacted Namco to determine the effect of over torquing the connector receptacle/limit switch housing by 3 ft-lbs. Namco indicated that the upper torque limit was specified to protect the limit switch housing. Namco also stated that their Qualification Test Reports contain a caution stating that applied torque is not to exceed 85 ft-lbs. According to Namco Engineering, 85 ft-lbs is the maximum torque that can be applied and not cause deformation or cracking of the limit switch housing.

NNECO interviewed the Job Supervisor responsible for installation of the Namco connectors. He was knowledgeable in the use of torque wrenches with crows foot adapters and their effect on actual torque versus indicated torque. The Job Supervisor produced a sheet of information

on computing torque when using an adapter or extension and indicated it was used during connector installation to establish the torque wrench setting. He also stated that the torque specified in the Inspection Plan was the actual torque applied to the receptacle/limit switch housing.

Conclusions

Based on the information above, NNECO concluded there was reasonable assurance that the connector receptacle/limit switch housing was not over torqued during installation of the connectors. If over torquing did occur, it would have exceeded the upper limit by only 3 ft-lbs (to 58 ft-lbs) which was well below 85 ft-lbs (the maximum torque that can be applied without causing deformation or cracking). NNECO further concluded that a procedure change was neither required nor appropriate because Unit-2 procedures provide instruction on how to perform various maintenance tasks and provides guidance on what tools may be used, but does not provide instruction on how to use tools. The premise that maintenance personnel are able to use the tools of their trade is a basic assumption in the preparation of procedures.

The inspector agreed with the licensee's conclusions that over torquing probably did not occur and that if it did occur it would have been by an insignificant amount. The inspector also agreed that a procedure change is not required.

6.3 Training on Procedure Change

A concern was identified that, in March 1991, a technician was required to use procedure SP 2410A, "Acoustical Valve Monitor Check," revision 5, with no instruction on recent changes to the procedure. The technician subsequently reported the procedure to be unworkable. April 22, 1991, another technician was unable to use the same revision to the procedure. At that time it was found that Revision 6 to the procedure had been approved. This revision was also found to be unworkable. There was a question if the procedure was workable and if adequate training was provided to the technicians prior to its use.

Assessment

The NRC requested that NNECO respond to the above concern. In a letter dated October 18, 1991, NNECO provided the following information:

- This assertion is not valid. Revision 5 of the procedure at issue was effective October 10, 1990 and had no changes processed against it.
- Revision 6 to SP 2410A was written to allow use of a test box, to clarify connection of the analyzer, to improve the order of steps, to provide a smoother progression of test activities, and to incorporate biennial review comments. The procedure was revised in April 1991, with an initial effective date of April 24, 1991. The effective date is

normally assigned as 2 weeks from the date of Plant Operating Review Committee (PORC) approval. This 2-week period allows time for copying and distribution of a procedure before it becomes effective.

- The need to perform the Acoustic Valve Monitoring System (AVMS) functional test occurred on April 22, 1991, as an unplanned shutdown had occurred. When the work activity was assigned, the personnel involved identified that they knew a revision (Revision 6) had been recently approved. To take advantage of the latest revision of the procedure, the effective date of Revision 6 was changed from April 24, 1991 to April 22, 1991.
- During the performance of the procedure, a typographical error was identified in the numbering of the figures used in the procedure (specifically, Figures 9.1.1 and 9.1.2 were incorrectly referred to as Figures 9.1 and 9.2). A non-intent procedure change was prepared and implemented to address the error. With the change in place, work under the procedure was completed.
- The safety significance of the figure number error in the procedure is extremely low and the proper action was taken by the personnel in pursuing its correction.
- Changes made to PORC-approved procedures must be presented for review and approval by the PORC within 14 days of their implementation. During the review of Change 1 prior to PORC presentation, it was identified that rather than changing the figure numbers themselves, the references to the figures should have been changed. Change 2 was processed to correct this error and to add enhancements to the procedure which were noted during the AVMS test and forwarded to the Instrumentation and Controls (I&C) manager via an internal memo dated April 23, 1991.
- The remaining relevant memo items were forwarded to the procedure enhancement file for consideration during the next revision. The procedure is expected to be revised to incorporate new testing equipment.
- During the investigation of this assertion, the use of the existing procedure (Revision 6 with its two changes) was reviewed with I&C personnel who do not have an average degree of familiarity with the system. They found the procedure workable and thought more training would be an enhancement but was not necessary for proper implementation of the existing procedure. The Training Program Control Committee is considering including this procedure in the 1992 training schedule for the I&C Department.

Conclusion

The inspector reviewed the original concern, NNECO's response to the NRC, and SP 2410A (revisions 5 and 6). The inspector concluded that NNECO addressed all items included in the

concern. It was noted, however, that both revision 5 and revision 6 of the subject procedure contained erroneous figure numbers. The inspector concluded that NNECO should implement a more effective procedure change, review, and validation process.

7.0 PROCEDURE CONTROL

Several concerns were expressed to the NRC regarding procedure issues, specifically problems with procedure adequacy and accuracy, implementation and compliance, and the procedure review and revision process.

7.1 Inadequate Review of Procedures by the PORC

Two concerns were expressed regarding the adequacy of PORC reviews, especially reviews of plant procedure revisions and their impact on operations and safety. Procedures that had recently undergone PORC review were later found to have deficiencies that should have been identified through the PORC process.

Assessment

These concerns centered around I&C surveillance procedures SP2404AW (RBCCW Radiation Monitor calibration) and SP2404AI (Steam Generator Blowdown Radiation Monitor functional test), and maintenance procedure MP2719F (Diesel Generator Governor installation and calibration). These procedures had all been recently revised and had been the subject of PORC reviews.

The two I&C surveillance procedures were revised to conform to the format of the new procedure Writer's Guide and to incorporate previously approved changes. Reviews of these revisions were conducted, and Revision 2 of both of these procedures was approved at PORC meeting 2-91-101 on July 31, 1991. These procedures were later found to be deficient in that procedural steps for SP2404AW did not match the procedure data sheet and detector sensitivity calculations for the RBCCW radiation monitor (RM 6038) could not be performed. In addition, SP2404AI specified erroneous annunciator window numbers to be checked in certain procedure steps, and the procedure data sheet specified inaccurate alarm setpoint tolerances.

The inspector reviewed the meeting minutes from PORC meeting 2-91-101 and found that the minutes provided only the most general description of the reason for procedure revisions to the two surveillance procedures. The licensee later took the appropriate corrective action in response to the deficiencies identified for these surveillance procedures. Revision 3 of SP2404AW was presented at PORC meeting 2-91-130 by the I&C Manager. This revision added detail and clarification to several procedure steps to allow proper performance of the procedure. Additionally, changes were issued to SP2404AI to provide minor step corrections and eliminate alarm tolerance discrepancies. These changes were approved by PORC meetings 2-91-151 and 2-91-152.

The revisions to MP2719F were more extensive, entailing additional procedure instructions for the removal and installation of the diesel generator governor, upgrading instructions for setting and recording generator "droop," conformance to the Procedure Writing Guide and adding a new calibration data sheet. All of these changes were documented in the PORC meeting (2-91-125) minutes. The changes were developed and reviewed by an MP2 engineering/ maintenance sub-committee prior to presentation at the PORC meeting. The PORC members approved the procedure revision based on the sub-committee presentation.

The PORC actions are governed by ACP-QA-1.04, "Plant Operations Review Committee", Rev. 28. This document specifies action regarding procedure review and the documentation of meeting minutes, the content of which should include, as a minimum:

"Details of specific PORC review and/or dispositioning of items...."

ACP-QA-1.04 states that the items will include procedure reviews. The inspector determined through review of selected PORC meeting minutes and discussions with plant staff and PORC members that in many cases involving procedure revisions, the PORC based final approval of procedure changes is based on the presentation given by a procedure sponsor or sub-committee. The sub-committee generally consists of personnel with the necessary system or equipment expertise to conduct a thorough review of procedure revision background, scope and impact prior to PORC presentation.

The actions of the sub-committee and PORC with regard to the procedures identified as part of this concern were of minimal safety significance. However, the inspector determined that sub-committee evaluations of the procedure revisions were apparently not conducted in a consistently thorough manner. As a result, technicians were later able to identify discrepancies in the content of some of the procedures.

Conclusion

The concerns expressed relative to the two surveillance procedures appeared to be valid. Although NNECO took the appropriate corrective action in response to the procedure revision problems identified, the mechanism established for developing and reviewing plant procedure revisions appeared to function in an inconsistent manner. While the PORC must adhere to procedure review from the standpoint of safety and environmental impact and rely on the detailed expertise of sub-committee members with regard to actual equipment impact, the PORC is ultimately responsible for the approved procedure. The results of this inspection indicates that improvement is needed in the way NNECO complies with the intent of the PORC procedure. The inconsistencies found in the documentation of PORC processes (meeting minutes) would become more and more significant if flaws present in procedures and procedure revisions are not discovered at the plant worker level.

7.2 Technical Adequacy of Plant Procedures

Several concerns were identified regarding the technical content of plant maintenance procedures. These included a lack of acceptance criteria, incomplete procedure steps, non-specific directions for personnel during procedure implementation and editorial problems. The concerns were related to I&C calibration procedures.

Assessment

One concern centered around the calibration procedure for the Waste Gas Process Radiation Monitor (RM 9095), specifically the steps for conducting a hydrogen purge of the detector. Surveillance procedure SP 2404AH, step 4.4.2 directs Operations Department personnel to conduct an 8-10 minute hydrogen purge of the detector prior to I&C calibration. The procedure, however, contains no detailed instructional steps for the Operations personnel to conduct the purge.

NNECO responded that the procedure is in fact adequate. Operations personnel utilize a separate procedure, OP 2337, "Gaseous Radwaste System," step 5.3.19 to conduct hydrogen purges of radiation monitor detectors. The inspector examined OP 2337, interviewed MP2 Operations personnel, and found that all personnel were knowledgeable in the use of OP 2337 to conduct hydrogen purges. As a supplemental corrective action to alleviate potential future problems in the conduct of hydrogen purges, NNECO is considering an upgrade of OP 2337 to clarify steps in the purge process and development of a separate purge section of the procedure.

The inspector considered the original surveillance procedure to be adequate. Operations personnel are cognizant of purging activities and how to conduct them using the additional procedure. NNECO response to this concern was appropriate. Based on review of NNECO corrective action, the inspector considered this issue closed.

Another concern involved procedural steps for restoring MP2 instrument transmitters to service following routine calibration checks. Two instrument isolation valves for an in-service transmitter were found closed (instrument isolated). This problem was apparently the result of the instrument (PT-100Y) not being restored by valve line-up following a calibration activity.

The specific issue was that procedure IC-2418C, "Pressurizer Pressure Instrument Calibration," revision 3, does not address transmitter isolation valve manipulation in the body of the procedure. A separate procedure, IC-2436D, "Safety Related Instrumentation Startup Valve Line-up," revision 5, governs instrument isolation valve manipulation for safety related instruments. The MP2 I&C Department processed a change to IC-2436D to include valve line-ups for non-safety related transmitters PT-100X and PT-100Y. An additional procedure upgrade is planned for IC-2418C to include transmitter isolation valve manipulation as part of the procedure. This change is to be implemented as part of the I&C Procedure Upgrade Program.

The inspector found NNECO actions in response to this valid concern to be appropriate. Although the safety significance of the procedure deficiency in this case was minimal, the MP2

I&C Department took steps to address potential instrument valve line-up problems for all valve isolated instruments.

A concern was expressed regarding the lack of acceptance criteria for I&C surveillance procedure SP2404AW (RBCCW Radiation Monitor calibration). This issue was a result of recent I&C procedure format conversion. The conversion process inadvertently deleted "asterisks" from some surveillance procedure data sheets. The asterisks are used to identify required acceptance criteria on the procedure data sheet. Revision 3 of this surveillance procedure was processed to clarify data sheet information, including acceptance criteria. The revision process, however, was deficient in that procedure review did not identify the missing acceptance criteria (re: Section 7.1 of this report).

This issue was also determined to have minor safety significance. NNECO's actions to correct the procedure deficiency were adequate; however, opportunities for improvement were again evident in the procedure review process.

Conclusion

The concerns identified exhibited some validity; however, they were not considered to be safety significant. NNECO's actions in response to all procedure deficiency items centered around the current Procedure Upgrade effort. This program, when fully implemented, should alleviate the majority of these minor procedure discrepancies.

7.3 I&C Maintenance Procedure IC 2417I-1

The NRC provided a concern related to I&C maintenance procedure IC 2417I. That procedure was for the WRNI channel calibration at MP2. The concern related to the adequacy of incorporation of certain vendor recommendations within data sheet I&C Form 2417I-1. NRC disposition of that concern involved providing the concern to NNECO for review and resolution, with subsequent NRC evaluation to ensure the adequacy of NNECO's actions. NNECO letter A09807, dated October 3, 1991, described NNECO's review of this concern.

Assessment

I&C Form 2417I-1 is the data sheet to record the IC 2417I channel calibration results. The drawers for each of the four WRNI channels have a six position calibration switch. I&C Form 2417I-1 has a desired voltage reading and tolerance for each step, as applicable. For example, IC 2417I, step 5.6, is for the log campbell circuit calibration. Step 5.6.8 records voltage readings and compares them with desired readings, such as, 6.187 ± 0.004 Vdc for WRNI channel B in switch position 4. Another example is 7.091 ± 0.075 Vdc for WRNI channel C in switch position 5.

The Gamma-Metrics vendor technical manual, VTM2-301-003A, section 4.3, Table 1, is a performance checklist that gives ideal readings for all six calibration switch positions. For calibration switch positions 1, 2, and 3, I&C Form 2417I-1 contains exactly the same values as

the vendor technical manual. The vendor technical manual and I&C Form 2417I-1 do not have exactly the same values for calibration switch positions 4, 5, and 6. For example, switch positions 4 and 5 have ideal values of 6.170 ± 0.002 Vdc and 7.068 ± 0.018 Vdc, respectively. This is an apparent difference of 0.017 Vdc (17 mV) and 23 mV for channels 4 and 5, respectively, between the desired readings in I&C Form 2417I-1 and the ideal readings given in the vendor manual. Also, the tolerance for those desired readings have an apparent difference of 2 Mv and 57 mV for channels 4 and 5, respectively, between the values in I&C Form 2417I-1 and the values in the vendor manual.

The inspector questioned the basis of desired readings given in I&C Form 2417I-1 for calibration switch positions 4, 5, and 6. I&C management produced a letter from Gamma-Metrics, dated November 6, 1989, that indicates desired readings for calibration switch positions 4, 5, and 6 could vary depending on site specific factors such as cable length. The Gamma-Metrics letter also provides a methodology to determine the desired readings for calibration switch positions 4, 5, and 6 at MP2. NNECO stated that it follows the vendor recommended method and that is the basis for the desired values currently in I&C Form 2417I-1.

Conclusions

Based on review of IC 2417I, I&C Form 2417I-1, VTM2-301-003A, and other applicable documentation, the inspector concluded that I&C Form 2417I-1 was adequate. Also, the inspector concluded NNECO did not maintain the Gamma-Metrics vendor technical manual, VTM2-301-003A, as required by ACP-3.23, Control of Vendor Technical Manuals, revision 3, section 6.4. NNECO agreed to either process a Vendor Technical Manual Change Request (Station Form 351) or obtain a new corrected manual from the vendor.

8.0 MANAGEMENT MEETINGS

A summary of preliminary inspection findings was discussed in an exit meeting on December 18, 1991. No proprietary information was covered within the scope of the inspection. No written material was given to the NNECO during the inspection period.

ATTACHMENT

PERSONS CONTACTED

NORTHEAST NUCLEAR ENERGY COMPANY

Mr. Terry Arnett, MP2, I&C
Mr. John D. Becker, MP2, I&C Manager
Mr. Gary J. Closius, Plant Quality Services
Mr. John T. Heg, MP2, Operations
Mr. John S. Keenan, MP2, Unit Director
Mr. Richard Goldsmith, Nuclear Training
Mr. William R. Salen, MP2, I&C
Mr. Raymond Schleicher, MP2, I&C General Supervisor
Mr. Jeffrey Smith, MP 2, Operations Manager
Mr. Peter Smith, MP2, I&C

ATTACHMENT

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I&C Form 2401B-1 Wide Range Logarithmic Flux Monitor Functional Test, revision 12, change 2, 7/12/91

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I&C Form SP 2401F-1, Hi-Power Trip Test Data Sheet, revision 6, change 1, 1/8/91

SP 2402I, Low Temperature/Over Pressure Circuitry Functional Test, revision 7, change 5, 9/23/91

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SP 2404AI, Steam Generator Blowdown Liquid Process Radiation Monitor, RM 4262, Functional Test, revision 2, change 1, 10/23/91

I&C Form SP 2404AI-1, S/G Blowdown Liquid Process Radiation Monitor Functional Test Data Sheet, revision 2, change 1, 10/23/91

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