

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Report Nos. 50-245/82-15
50-336/82-16

Docket Nos. 50-245
50-336

License Nos. DPR-21
DPR-65 Priority -- Category C

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

Facility Name: Millstone Nuclear Power Station, Units 1 and 2

Inspection At: Waterford, Connecticut 06385

Inspection Conducted: June 27 through August 7, 1982

Inspectors:

T.C. Elsasser
for J. T. Shedlosky, Sr. Resident Inspector 9/13/82
date signed

T.C. Elsasser
for D. R. Lipinski, Resident Inspector 9/13/82
date signed

Approved by:

T.C. Elsasser
T. C. Elsasser, Chief, Reactor Projects
Section 1B, Division of Project and
Resident Programs 9/13/82
date signed

Inspection Summary:

Unit 1: Routine facility safety inspections, June 27 through August 7, 1982 (Report Number 50-245/82-15), including evaluations of plant operations, equipment alignment and readiness, radiation protection, physical security, fire protection, plant operating records, maintenance and modifications, surveillance testing and calibrations, and reporting to the NRC. The inspection involved 130 hours of onsite, regular, backshift, and weekend inspection efforts by two resident inspectors.

Results: No violations were identified.

Unit 2: Routine facility safety inspections, June 27 through August 7, 1982 (Report Number 50-336/82-16), including evaluations of plant operations, equipment alignment and readiness, radiation protection, physical security, fire protection, plant operating records, maintenance and modifications, surveillance testing and calibrations, and reporting to the NRC. The inspection involved 113 hours of onsite, regular, backshift, and weekend efforts by two resident inspectors.

Results: Two violations were identified: failure to report significant events in accordance with 10 CFR 50.72 (paragraph 4) and failure to follow procedures (paragraph 4).

DCS Identification Numbers

NRC Inspection Nos. 50-245/82-15
50-336/82-16

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DETAILS

1. Persons Contacted

The below listed technical and supervisory level personnel were among those contacted:

P. Blasioli, NUSCO, Unit 1 Licensing Engineer
J. Crockett, Unit 3 Superintendent
F. Dacimo, Quality Services Supervisor
E. C. Farrell, Station Services Superintendent
B. Granados, Health Physics Supervisor
H. Haynes, Unit 2 Instrumentation and Control Supervisor
R. J. Herbert, Unit 1 Superintendent
J. Kangley, Chemistry Supervisor
J. Keenan, Unit 2 Engineering Supervisor
J. J. Kelley, Unit 2 Superintendent
E. J. Mroczka, Station Superintendent
V. Papadopoli, Quality Assurance Supervisor
R. Place, Unit 2 Engineering Supervisor
R. Palmieri, Unit 1 Engineering Supervisor
W. Romberg, Unit 1 Operations Supervisor
S. Scace, Unit 2 Operations Supervisor
F. Teeple, Unit 1 Instrumentation and Control Supervisor
W. Varney, Unit 1 Maintenance Supervisor
P. Weekley, Security Supervisor

2. Status of Unresolved and Open Items

New Items:

Unit 1

245/82-15-01, Update Technical Specification Table 3.12.2, to reflect actual number of heat detectors installed (paragraph 3f).

245/82-15-02, Modification to ATWS/ARI System, to reduce susceptibility to electric transients (paragraph 3m).

Unit 2

336/82-16-01, Failure to follow procedures concerning verification of valve position and proper maintenance of control room logs (paragraph 4).

336/82-16-02, Failure to report a radioactive release within one hour as required by 10 CFR 50.72 (paragraph 4).

Old ItemsUnit 1

50-245/77-32-03 (Closed). This item was opened to review documentation of the licensee's continuing program of inservice inspection of piping restraint snubbers. The inspector reviewed Procedure SP781.1, "Hydraulic Snubber Functional Test", revision 3, with change 2, which describes the surveillance activity and specifies acceptance criteria. The inspectors reviewed the surveillance data sheets for the preceding two cycles in order to verify the ongoing accomplishment of the surveillance requirements. The inspector also reviewed the licensee's study, "Operability Evaluation of Hydraulic Snubbers" (Calculation 78-720-107GM), which developed acceptance criteria for performance of snubbers installed on safety-related piping. The inspector has no further questions on this matter.

50-245/78-34-03 (Open). This item was opened to follow two issues relating to containment isolation valves.

The first issue concerns an apparent typographical error in Table 3.7.1 of the 1 Unit Technical Specifications concerning the position of values 1-IC-3, 1-IC-4, and 1-CU-5. An amendment to Technical Specifications has been issued and implemented correcting this error. This issue is closed.

The second issue concerns the testability of valves FSV-9-75 A through D. These valves isolate various sample lines to the containment oxygen analyzer. They are solenoid operated and cycle sequentially as part of the oxygen analyzer sampling scheme. The licensee's engineering evaluation recommended replacement of the existing solenoid operated valves FSV-9-75 A through D with valves with independent position indication. This is presently planned as part of a larger containment sampling system modification to be accomplished during the autumn 1982 refueling outage. This item will remain open pending installation and testing of the modification.

50-245/79-27-02 (Closed). This item was opened to track a change to the surveillance specified in Technical Specification 4.12.2 to permit detectors to be functionally checked by application of a simulated signal directly into the primary sensor vice into the measurement channel. Amendment 83 to Technical Specifications has been issued to authorize this type of test. This item is closed.

3 Review of Plant Operation - Plant Inspection (Units 1 and 2)

The inspector reviewed plant operations through direct inspection and observation of Units 1 and 2 throughout the reporting period. Unit 1 operated at full power through July 30. Following a trip on July 31,

the unit operated at reduced power for maintenance until August 6, when it was returned to full power. Unit 2 operated at full power, with exception of a reactor trip on July 12 and a forced shutdown on July 15 and July 22.

a. Instrumentation

Control room process instruments were observed for correlation between channels and for conformance with Technical Specification requirements. No unacceptable conditions were identified.

b. Annunciator Alarms

The inspector observed various alarm conditions which had been received and acknowledged. These conditions were discussed with shift personnel who were knowledgeable of the alarms and actions required. During plant inspections, the inspector observed the condition of equipment associated with various alarms. No unacceptable conditions were identified.

c. Shift Manning

The operating shifts were observed to be staffed to meet the operating requirements of Technical Specifications, Section 6, both to the number and type of licenses. Control room and shift manning was observed to be in conformance with Technical Specifications and site administrative procedures.

d. Radiation Protection Controls

Radiation protection control areas were inspected. Radiation Work Permits in use were reviewed, and compliance with those documents as to protective clothing and required monitoring instruments was inspected. Proper posting of radiation and high radiation areas was reviewed in addition to verifying requirements for wearing of appropriate personal monitoring devices. There were no unacceptable conditions identified.

e. Plant Housekeeping Controls

Storage of material and components was observed with respect to prevention of fire and safety hazards. Plant housekeeping was evaluated with respect to controlling the spread of surface and airborne contamination. There were no unacceptable conditions identified.

f. Fire Protection/Prevention

The inspector examined the condition of selected pieces of fire fighting equipment. Combustible materials were being controlled

and were not found near vital areas. Selected cable penetrations were examined, and fire barriers were found intact. Cable trays were clear of debris. There were no unacceptable conditions identified.

The inspector examined the condition of a sample of 10 of 59 heat activated fire detectors installed in areas listed in Unit 1 Technical Specification Table 3.12.2. The inspector noted an apparent error in the listing of instrumentation in the Diesel Generator Room. While the table lists the total number of installed devices as "3", six devices are installed. The licensee stated that the tabulated total number of detectors would be revised and that the determination of the number of detectors required to be operable would be reviewed. An open item is identified to track this update to Technical Specifications (245/82-15-01).

g. Control of Equipment

During plant inspections, selected equipment under safety tag control was examined. Equipment conditions were consistent with information in plant control logs.

h. Instrument Channels

Instrument channel checks recorded on routine logs were reviewed. An independent comparison was made of selected instruments. No unacceptable conditions were identified.

i. Equipment Lineups

The inspector examined the breaker position on switchgear and motor control centers in accessible portions of the plant. Equipment conditions, including valve lineups, were reviewed for conformance with Technical Specifications and operating requirements. No unacceptable conditions were identified.

j. Reactor Trip - July 12 (Unit 2)

At 0452 on July 12, 1982, Millstone Unit 2 experienced a reactor trip upon a turbine trip from full power.

A routine surveillance, "Hydraulic Thrust Wear Detector Test", was in progress in accordance with Section 7.17 of OP2651, "Turbine Generator Periodic Testing", Revision 3. The test involves simultaneously activating a "lockout" lever while rotating a test handwheel to the two trip setpoint values. The final step in the test requires "Return test handle to the 'zero' indicator, then release it". The operator released the lockout lever while returning the handle to zero but, apparently, before the thrust wear trips reset. All safety systems functioned properly on the

transient. Troubleshooting revealed no derangement of the turbine thrust wear instrument or trip circuit.

The reactor was made critical on July 15, 1982. The inspector had no further questions on this matter.

k. Forced Shutdown - July 15 (Unit 2)

On July 15, 1982, Millstone Unit 2 underwent a forced shutdown from Mode 2, 0.0001% power. Surveillance testing revealed unacceptable operation of the Control Element Assembly (CEA) Motion Inhibit feature of the CEA control system. The fault was traced to a failure in the CEA out of sequence scanner circuit. Repairs were completed, and the reactor was taken critical on July 16, 1982.

The inspector had no further questions regarding this matter.

l. Forced Shutdown - July 22 (Unit 2)

On July 22, 1982, Millstone Unit 2 conducted a normal shutdown and cooldown to a temperature of less than 200 degrees F in accordance with Technical Specifications. Reactor coolant system leak rate had been rising slowly during the present cycle. The licensee had increased the frequency of leak rate determination by inventory balance to better conserve conditions. Leakage had been identified at pressurizer spray valve isolation valve 2-RC-253 and from #1 steam generator. At 0700 on July 22, surveillance indicated reactor coolant system leakage in excess of the Technical Specification limit of 1.0 gallon per minute. Attempts to further identify and quantify the leakage failed, necessitating a shutdown and cooldown.

Further inspection identified leakage at power operated relief valve block valve 2-RC-403 and from the reactor coolant system seal injection manifold, as well as packing leakage at 2-RC-405. Following repairs to valves 2-RC-403 and 2-RC-253 and packing adjustments of 2-RC-405, a plant heatup and pressurization was conducted. Final inspections at normal pressure identified no new leakage sources. The reactor was made critical on August 3 and returned to power on August 4.

The inspectors will continue to observe reactor coolant system leakage during routine safety inspections.

m. Reactor Trip - July 31 (Unit 1)

At 0110 on July 31, 1982, Millstone Unit 1 experienced a reactor trip and loss of normal power due to a sequence of events initiated by the failure of a generator protective relay.

At Millstone Unit 1, turbine generator output directly supplies the unit output transformer and the Normal Station Service Transformer (NSST). The generator output breakers, 15G-5T-2 and 15G-6T-2, are located on the secondary (345K Volt) side of the output transformer. The generator is protected against the possibility of high phase currents caused by a generator to grid phase mismatch in the event high impedance between the generator and the output transformer by the "generator out-of-step" relay. On July 31, this relay failed in a manner which caused the unit output breakers to trip open, initiating a turbine load rejection. Millstone Unit 1 has the capability to pass full load steam flow to the main condenser via main turbine bypass valves. The turbine load rejection initiated a Turbine Control Valve (TCV) fast closure, bypass valve opening, selected rod insertion, and a recirculation pump runback. An automatic fast transfer of station loads from the NSST to the Reserve Station Service Transformer (RSST) was initiated by the opening of the output breakers 15G-5T-2 and 15G-6T-2 but subsequently blocked when the circuitry sensed that the turbine remained available for station loads and the allowable time interval for transfer elapsed.

Despite the TCV fast closure, sufficient steam remained in the steam chest and headers to cause the turbine speed to rise upon the load rejection. The accompanying rise in frequency and voltage was experienced on the auxiliary 4160 volt and 480 volt A.C. buses via the NSST. At Millstone Unit 1, two 125 volt D.C. buses are each supplied by a battery charger which, in turn, is supplied power from the auxiliary A.C. buses. A station battery "floats" on each D.C. bus as an emergency power supply in the event of an interruption in A.C. power to the battery chargers. The effect of the momentary rise in A.C. voltage and frequency on the battery chargers was to cause a rise in D.C. output voltage.

The Anticipated Transient Without Scram/Alternate Rod Insertion (ATWS/ARI) at Millstone Unit 1 (CONDEC ATWS/RPT Solid State Logic PN9N59) consists of two divisions of two channels each. Both channels must trip within a division to cause that division to trip, but the tripping of a single division is sufficient to initiate the ATWS/ARI response. This response is an alternate rod insertion by energizing the backup scram solenoid valves and, after a 30 second time delay, a trip of the reactor coolant recirculation motor generator field breakers. The D.C. voltage transient caused the power supplies of both channels of ATWS/ARI division I to trip on overvoltage. Upon loss of power, it is the characteristic of the ATWS/ARI system sensing and activation logics circuits to change state as energy stored in capacitive elements is dissipated. The trip of division I ATWS/ARI initiated a full reactor scram. This characteristic is also discussed in inspection reports 245/81-11 and 245/82-04.

The reactor pressure regulator was unable to shut the bypass valves in time to prevent the normal pressure drop following a reactor scram from reaching the setpoint of the Group I Primary Containment Isolation (PCI) of 892+ or - 12 psi. The Group I PCI caused all Main Steam Isolation Valves (MSIV) to shut isolating the reactor from its normal heat sink. The isolation condenser was manually initiated to remove decay heat.

The MSIV closure secured the steam source to the turbine generator. Condensation in the moisture separators due to very low steam flow caused water level in the separators to rise. High level in "c" moisture separator initiated a trip of the main turbine throttle valves. Normally, a trip of the main turbine throttle valves causes an automatic fast transfer of station loads from the NSST to the RSST. In this case, however, fast transfer remained blocked because of the apparently successful load rejection moments earlier. Power was lost to the station 4160 volt and 480 volt A.C. auxiliary buses. The emergency gas turbine generator and emergency diesel generator started and closed in on their respective emergency buses, restoring A.C. power. The RSST was placed in service manually, and the emergency generators were secured.

Briefly summarized:

- Turbine generator output breakers open
- TCV fast closure, bypasses open, selected rod insertion
- "Successful" load reject blocks Automatic Fast Transfer of plant loads to RSST. Plant loads remain supplied by NSST.
- ATWS/ARI trip, reactor scram
- PCI Group 1 isolation
- Turbine trip, power lost to NSST. Automatic Fast Transfer remains blocked.
- Emergency generators start and restore A.C. power
- Isolation condenser placed in service
- Electric plant lineup restored to that normal for a shutdown condition.

The licensee has been working with the ATWS/ARI vendor to develop system modifications to make the ATWS/ARI less susceptible to electrical transients. These modifications are scheduled for installation during the autumn 1982 refueling outage. An open item is identified to follow this work. (245/82-15-02).

The licensee is evaluating the implications of reducing the low pressure PCI Group I isolation setpoint to provide additional margin for reactor pressure regulator operations. Preliminary results indicate that such a reduction may be made while still meeting the basis for the isolation. A Technical Specification change request is planned upon completion of the analysis. An open item is identified to follow this matter. (245/82-15-03).

4. Unplanned, Radioactive Release (Unit 2)

On July 23, 1982, Millstone Unit 2 released radioactive materials to the environment in an unplanned and uncontrolled manner via the Unit 2 ventilation stack. Release rates were approximately one-third of those allowable by unit Technical Specifications (Appendix B to license DPR-65).

The reactor containment may be ventilated by exhausting the containment atmosphere via containment isolation valves 2-AC-6 and 2-AC-7, particulate filters, valve 2-AC-11, and the main exhaust blowers to the Unit 2 stack. The containment may also be ventilated by exhausting the containment atmosphere through 2-AC-6 and 2-AC-7 and the Enclosure Building Filtration System (EBFS) to the Unit 1 stack. The enclosure building atmosphere may also be exhausted to the Unit 1 stack via valve 2-AC-8 and the EBFS. The 48-inch diameter line from 2-AC-8 joins the 48-inch diameter line from 2-AC-7 near the EBFS suction.

Following plant shutdown and cooldown on July 22 and 23, preparations were in progress for repairs to correct reactor coolant system leakage. Due to airborne activity levels in the containment which were caused by that leakage, the containment was to be purge ventilated via the EBFS to the Unit 1 stack. Procedure OP2314B, "Containment and Enclosure Building Purge", revision 5, dated March 5, 1981, was to be used to accomplish this evolution. Step 7.1.1 of OP2314B requires valves 2-AC-8 and 2-AC-11 to be tagged shut to isolate the EBFS suction (and the containment) from the enclosure building atmosphere and the main exhaust plenum respectively. This was accomplished by unit tagout 1509-82. In addition to shutting these valves, however, a decision was made to deactivate them by removing their control power fuses. When the control power fuses are removed, valve position indication is lost. This action is similar to that required for valves 2-AC-6 and 2-AC-7 during mode 1, 2, 3, and 4 operations. Piping and Instrumentation Diagram 25203-26028, Sheet 1, revision 3, "Containment and Enclosure Building Ventilation", show that valves 2-AC-8 and 2-AC-11 are air-operated valves with solenoid-operated pilot valves and that valve 2-AC-8 fails open and valve 2-AC-11 fails shut upon loss of power. Step 7.1.4.e of OP2314B requires 2-AC-11 and 2-AC-8 to be verified shut. This step was apparently not conducted as valve 2-AC-8 had opened upon removal of control power and remained open. This is an example of a violation and failure to follow procedures (336/82-16-01).

At 1850 on July 23, containment purging began, using "A" EBFS. At 1900, radiation monitors on the Unit 2 stack indicated rising activity release rates from 50 microcuries per second to a peak of 6000 microcuries per second at 2000. At 2150, "B" EBFS was placed in service to aid in the purge evolution. With valve 2-AC-8 open, two exhaust paths existed for the containment atmosphere.

One path was the intended path through valves 2-AC-6 and 2-AC-7 via the EBFS to the Unit 1 stack. The other path was through valves 2-AC-6 and 2-AC-7, across the EBFS suction, and out into the enclosure building via 2-AC-8. Once blown into the enclosure building, activity was swept into the normal shutdown ventilation flow and exhausted through the Unit 2 stack via particulate filters.

During the afternoon of July 24, release rates from the Unit 2 stack returned to normal.

The licensee estimates that approximately 240 curies of noble gas activity and 2 millicuries of iodine-131 activity were released. Winds during most of the release were toward the South, out into Long Island Sound. Using meteorological data available for the time of the release and the computer code GASPARG, the point of maximum personnel exposure was 1.2 miles East Southeast of the plant. Exposures calculated were $1.86E-2$ milliRem to an adult (due primarily to noble gases) and $1.56E-3$ milliRem to a child (due primarily to iodine-131).

Notification of unplanned or uncontrolled releases of radioactive materials is required by 10 CFR 50.72(a)(8). This notification is required to be made within one hour of the occurrence to the Nuclear Regulatory Commission Operations Center (NRCOC).

In a letter from W. G. Council and W. F. Fee to B. F. Grier, dated March 27, 1981, the licensee discussed the reporting requirements of 10 CFR 50.72, specifically, "Accidental, unplanned, or uncontrolled radioactive release". In this letter, the licensee defined an unplanned, significant release as an unexplained release rate in excess of 1500 microcuries per second. In this letter, the licensee bases his definition upon postulated releases of noble gas activity. This information is available in the control room as an appendix to Procedure ACP-QA-10.01, Revision 15, "Plant Incident Reports".

Between about 1900 and 2000 on July 23, activity release rates exceeded 1500 microcuries per second at the Unit 2 stack from a release path unanticipated by the evolutions in progress. At approximately 1230 on July 24, the Senior Resident Inspector was informed of the event. Notification of the NRCOC was delayed over 16 hours from the time control room instruments indicated that the event was in progress. This is a violation, failure to provide notification of significant events (336/82-16-02).

A note to Section 7 of Operating Procedure OP2314B requires that the times of starting and stopping containment purge be recorded in the Shift Supervisor's Log. The Shift Supervisor's Log contains no entry as to the securing of containment purge. This is an example of a violation, failure to follow procedures (336/82-16-01).

Administrative Control Procedure ACP10.05, Revision 1, "Log Book Requirements (Control Room)", requires that the Shift Supervisor's Log include a record of "unit operating information", including "radiation hazards", "damage or malfunctions of any major equipment, process system, or building structure", "deviations in operation", and other significant events and evolutions. The Shift Supervisor's Log does not provide information regarding this unplanned, uncontrolled release. This is an example of a violation (336/82-16-01).

5 Review of Plant Operations - Logs and Records - (Units 1 and 2)

During the inspection period, the inspector reviewed operating logs and records covering the inspection time period against Technical Specifications and Administrative Procedure Requirements. Included in the review were:

Shift Supervisor's Log	-	daily during control room surveillance
Plant Incident Reports	-	6/27/82 through 8/7/82
Jumper and Lifted Leads Log	-	all active entries
Maintenance Requests and Job Orders	-	all active entries
Construction Work Permits	-	all active entries
Safety Tag Log	-	all active entries
Plant Recorder Traces	-	daily during control room surveillance
Plant Process Computer Printed Output	-	daily during control room surveillance
Night Orders	-	daily during control room surveillance

The logs and records were reviewed to verify that entries are properly made; entries involving abnormal conditions provide sufficient detail to communicate equipment status, deficiencies, corrective action restoration and testing; records are being reviewed by management; operating orders do not conflict with the Technical Specifications; logs and incident reports detail no violations of Technical Specification or reporting requirements; and logs and records are maintained in accordance with Technical Specification and Administrative Control Procedure requirements.

There were no unacceptable conditions identified.

6. Review of Periodic and Special Reports

Upon receipt, periodic and special reports submitted by the licensee pursuant to Technical Specifications 6.9.1 and 6.9.2 and Environmental Technical Specification 5.6.1 were reviewed by the inspector. This review included the following considerations: the report includes the information required to be reported by NRC requirements, test results and/or supporting information are consistent with design predictions and performance specifications, planned corrective action is adequate for resolution of identified problems, determination of whether any information in the report should be classified as an abnormal occurrence, and the validity of reported information. Within the scope of the above, the following periodic report was reviewed by the inspector:

- Monthly Operating Report, Units 1 and 2, June 1982.
- Monthly Operating Report, Units 1 and 2, June 1982.

7. Preparation for Refueling - Unit 1

New fuel receipt and inspection practices were observed. The inspectors followed this evolution from the arrival of the fuel at the site through fuel handling, inspection, and channelling, to insertion of the fuel into either the fuel vault or the fueling pod. The inspector reviewed these activities to verify: compliance with regulatory requirements, compliance with applicable procedures, that the procedure was adequately detailed to assure performance of a satisfactory inspection, that the inspection results satisfied the procedural acceptance criteria, proper equipment alignment and calibration, adequacy of radiological controls for worker protection, measures to prevent inadvertent criticality, and qualifications and certifications of personnel conducting the inspections. The licensee's effort involved the use of 11 inspectors whose qualifications were certified jointly by the licensee and the fuel vendor. The inspector observed six of these 11 inspectors in the conduct of receipt inspections.

Inspection and handling of the following new fuel assemblies was observed:

<u>Bundle Number</u>	<u>Date</u>
LY2356	July 7
LY2859	July 7
LY2807	July 13
LY2805	July 13
LY2791	July 14
LY2799	July 14

The following procedures were reviewed:

RE1012, "New Fuel Receipt and Inspection", Revision 5.

RE1072, "Channelling Unirradiated Fuel in the Fuel Inspection Stand", Revision 3.

RE1074, "Unirradiated Fuel Channel and Channel Fastener Inspection", Revision 1.

No unacceptable conditions were observed. The inspection of refueling preparations will continue during the succeeding inspection period.

8. Licensee Event Reports (LERs)

The inspector reviewed the following LERs to verify that the details of the event were clearly reported, including the accuracy of the description of cause and adequacy of corrective action. The inspector determined whether further information was required and whether generic implications were involved. The inspector also verified that the reporting requirements of Technical Specifications and Station Administrative and Operating Procedures had been met; that appropriate, corrective action had been taken; that the event was reviewed by the Plant Operations Review Committee; and that the continued operation of the facility was conducted within the Technical Specifications limits.

Unit 1

- 82-12 A design error was identified in the valve control logic for the injection valves of the Low Pressure Coolant Injection system. The inspector observed corrective actions and system re-test, as discussed in paragraph 11 of this report.
- 82-13 Inoperable emergency gas turbine generator due to fouling of the air start system with rust particles.
- 82-14 Inoperable emergency service water pump "ID" due to severe marine fouling. The inspector observed corrective maintenance as documented in report 245/82-12.

Unit 2

- 82-17 Inoperable process computer due to faulty circuit card.
- 82-18 Two of two containment atmosphere particulate radiation monitors overranged due to rising containment particulate activity. The detectors have been modified to extend their range. The inspectors are continuing to follow the licensee's efforts to reduce reactor coolant system leakage to the containment atmosphere.
- 82-19 Above normal fission product activity in the reactor coolant suggests fuel cladding defects in between 10 and 30 fuel rods. Licensee Event Report 82-28 also addresses fuel element defects.

- 82-20 Surveillance testing of the High Pressure Safety Injection system was not completed during the required time interval.
- 82-21 Fire damper 2-EB-109 failed shut due to corrosion of its metal operating band.
- 82-22 Inoperable emergency diesel generator due to spurious fire activation signal. The inspector observed portions of the corrective maintenance effort as documented in Inspection Report 336/82-12.
- 82-23 Leakage due to pipe cracking found in Safety Injection System test line in vicinity of a relief valve.
- 82-24 Loss of vital AC facility 1 due to rain leakage during unusually severe storm. A water shield has been installed.
- 82-25 Inoperable Control Element Assembly (CEA) due to a loose connection in its control circuit.
- 82-26 Inoperable containment gaseous radiation monitor (1 of 2) and particulate monitors (2 of 2) due to personnel error. An open item is identified to track procedural changes which the licensee has proposed in order to reduce the likelihood of similar, future errors.
- 82-27 Inoperable CEA Motion Inhibit circuit due to facility circuit and logic chip.
- 82-28 High reactor coolant system dose equivalent iodine-131 concentration. Following a reactor trip at 0452 on July 12, reactor coolant system dose equivalent iodine-131 concentration exceeded 1 microcurie per gram for approximately 16 hours from 0620 to 2330 on July 12. Two peaks, one of 1.95 microcuries per gram at 0830, and another of 2.01 microcuries per gram at 1330, occurred. The unit remained shut down during this period. Licensee Event Report 82-19 also addresses fuel element defects.
- 82-29 Inoperable coolant charging pump "B" due to weld failure in 3/4 inch pipe to suction side relief valve.

9. Verification of TMI - Task Action Plan Requirements

The inspector reviewed the implementation of commitments made by the licensee to satisfy the requirements of TMI-2 Lessons Learned Task Force. Those requirements are contained in NUREG-0578, dated July 1979, and NRC letters to all operating plants dated September 13, 1979, and October 30, 1979. The licensee committed to implement those requirements and documented the action taken in letters to the NRC

dated December 31, 1979, and January 31, 1980. Those actions were evaluated by the NRC, and reports of those evaluations were documented in NRC letters dated April 18, 1980 (Unit 1), and February 25, 1980 (Unit 2). The Lessons Learned Task Force requirements were republished in NRC Action Plan Developed as a Result of the TMI-2 Accident, NUREG-0660, May 1980, and revised August 1980. Preliminary clarifications to the action plan (TAP) were issued by NRC letters dated September 5, 1980, and September 19, 1980. NUREG-0737 published the Clarification of TMI Action Plan Requirements and was transmitted to Operating Power Plants by letter dated November 13, 1980. These NRC requirements, clarifications, and licensee commitments were used as the basis for inspection.

Recombiner Procedures (2.1.5c/II.E.4.1)

Unit 2

Recombiners are located inside containment. NRC agreed that no modifications are required. Operating Procedure OP2313C, "Containment Post-Incident Hydrogen Control", addresses the control of hydrogen gases using the Post-Incident Recirculation System, Hydrogen Recombiners, and Hydrogen Purge via the Enclosure Building Filtration System. Revision 6, dated March 5, 1981, is the latest procedure, and it meets the requirements stated in NUREG-0660 and 0737.

10. Inspector Witnessing of Surveillance Tests

The inspector witnessed the performance of surveillance testing of selected components to verify that the surveillance test procedure was properly approved and in use, test instrumentation required by the procedure was calibrated and in use, technical specifications were satisfied prior to removal of the system from service, the test was performed by qualified personnel, the procedure was adequately detailed to assure performance of a satisfactory surveillance, and test results satisfied the procedural acceptance criteria or were properly dispositioned. The inspector witnessed the performance of:

Unit 1

- "Diesel Generator Operational Readiness Demonstration" per SP668.6 Revision 6 on June 28.

Unit 2

- "Weekly Pressurizer Boron Equalization to Reactor Coolant Concentration" per OP2654, Section 7.10, Revision 3, on June 28.
- "ESAS/ATI Calibration" per IC 2430, Revision 0, Change 1, on June 28 - 30 (samples of channels).

- "Low Temperature/Overpressure Circuitry Functional Test" per SP2402I, Revision 2, on July 9.
- "Subcooling Margin Monitor Functional Test" per SP2410C, Revision 0, on August 4.

11. Plant Maintenance and Modifications

During the inspection period, the inspector frequently observed various maintenance and problem investigation activities. The inspector reviewed these activities to verify compliance with applicable codes and standards, required QA/QC involvement, proper use of safety tags, proper equipment alignment and use of jumpers, personnel qualifications, radiological controls for worker protection, fire protection, retest requirements, and reportability as required by Technical Specifications. In a similar manner, the implementation of design changes and modifications were reviewed, including the associated 10 CFR 50.59 safety evaluation. Compliance with requirements to update procedures and drawings were verified, and post-modification acceptance testing was evaluated. The following activities were included in this review:

Unit 1

- Correction of design error in Low Pressure Coolant Injection injection valve control logic.
- Installation of seismic supports for Standby Liquid Control System accumulators (modification required as a result of Bulletin 79-14).
- Replacement of mechanical seals and pump thrust bearings of "A" Condensate Booster Pump (Job Orders 1-82-150 and 150A).

Unit 2

- Modifications to steam generator blowdown radioactive waste treatment system.
- Modification of temperature alarm setpoint for relief valve down-steam tailpieces (PDCR 2-059-82).

12. Onsite Safety Committee Activities (Unit 2)

On August 5, inspector attended a meeting of the Plant Operations Review Committee (PORC 2-82-130), during which the modification PDCR 2-059-82 was reviewed and approved. There were no unacceptable conditions identified.

13. Review of Radioactive Material Shipments - (Unit 1)

The inspector reviewed the activities concerning the shipment of radioactive waste to the Barnwell, South Carolina, burial site. Those activities included receipt inspections of the shipping cask and liner, solidification of material, radiation surveys, and the completion of administrative and quality control requirements prior to shipment. These inspections concerned Dewatered Purification Media (3.4 curies) on July 28, 1982.

14. Exit Interview

At periodic intervals during the course of the inspection, meetings were held with senior facility management to discuss the inspection scope and findings.