February 8, 2000

Mr. Robert M. Bellamy
Site Vice President
Entergy Nuclear Generation Company
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, Massachusetts 02360-5599

SUBJECT: PILGRIM INSPECTION REPORT NO. 05000293/1999008

Dear Mr. Bellamy:

This refers to the inspection conducted on November 29, 1999, through January 9, 2000, at the Pilgrim Nuclear Power facility. The enclosed report presents the results of this inspection.

During the six weeks covered by this inspection period, the conduct of activities at the Pilgrim facility was categorized by safe plant operations. This was most evident during a planned down power maneuver and during the response to a loss of several feedwater heater level controllers.

The Y2K rollover went smoothly at Pilgrim with no adverse effect on plant equipment and integrated plant operations. Operators closely followed the test procedure developed for Y2K and implemented precautionary actions to ensure continued, safe power operation during the rollover.

We also performed an operations department human performance initiative inspection in response to the September 1999 Plant Performance Report review meeting held to evaluate overall performance at Pilgrim. Our review found some deficiencies in the quality of apparent and root cause analyses. We noted that your staff has taken some actions to address these deficiencies. In addition, your efforts to develop a long term human performance program is viewed as a good initiative that should assist in developing more consistent human performance.

Sincerely,

/RA/

Clifford J. Anderson, Chief
Projects Branch 5
Division of Reactor Projects

Docket No.: 05000293
License No.: DPR-35

Enclosure: Inspection Report 0500050293/1999008

cc w/encl:
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J. Alexander, Director, Nuclear Assessment Group
D. Tarantino, Nuclear Information Manager
S. Brennion, Regulatory Affairs Department Manager
J. Fulton, Assistant General Counsel
R. Hallisey, Department of Public Health, Commonwealth of Massachusetts
The Honorable Therese Murray
The Honorable Vincent DiMacedo
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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

License No.:	DPR-35
Report No.:	99008
Docket No.:	05000293
Licensee:	Entergy Nuclear Generation Company Pilgrim Nuclear Power Station 600 Rocky Hill Road Plymouth, MA 02360
Facility:	Pilgrim Nuclear Power Station
Inspection Period:	November 29, 1999, through January 9, 2000
Inspectors:	R. Laura, Senior Resident Inspector R. Arrighi, Resident Inspector
Approved by:	C. Anderson, Chief Projects Branch 5 Division of Reactor Projects

EXECUTIVE SUMMARY

Pilgrim Nuclear Power Station
NRC Inspection Report 05000293/1999008

This inspection included aspects of licensee operations, engineering, maintenance, and plant support. The report covers resident inspection for the period of November 29, 1999, through January 9, 2000.

Operations

- Operators responded well to the loss of the "B" train, feedwater heater string by closely following the related abnormal operating procedure and lowering power to 70%. After maintenance workers identified and corrected the problem of a loose power supply to feedwater heater level controllers, operators returned the unit to full power with no problems. Good teamwork was noted between operations personnel, reactor engineers, engineering and maintenance department personnel. (Section O1.1)

- There was no adverse impact to the plant due to the Y2K rollover. The licensee supplemented the normal operating shift by manning the technical support center, and tracked industry wide problems for possible applicability to Pilgrim. (Section O1.1)

- The down-power maneuver to perform a rod sequence exchange was well controlled. Excellent three-way communication and good teamwork were displayed by operations and reactor engineering personnel. (Section O1.1)

- The Entergy Corporate assessment of the operations department was self critical and identified several areas for improvement. The issues identified were properly captured in the licensee's corrective action program. (Section O1.1)

- The licensees apparent and root cause determinations for several human error events overlooked significant contributors, especially procedure clarity and training. The root cause evaluator did not directly interview personnel involved in the events, which adversely affected the cause determinations. (Section O4.1)

- Operators were not briefed in a timely fashion on the results of relevant root and apparent cause evaluations. This contributed to a lack of acceptance of the cause and corrective actions for operational events. (Section O4.1)

- Several broader and long-term corrective actions are in progress and being implemented to address human performance issues. Reactor and senior reactors were recently placed on the same shift hours to improve shift performance and to emphasize shift accountability. Improvements were made in the operations support group to improve the quality and consistency of apparent and root cause evaluations and to improve the quality of procedures. (Section O4.1)

Maintenance

- Good procedure adherence and self-checking techniques were displayed during observed maintenance and surveillance activities. The activities observed and reviewed were performed safely and in accordance with approved procedures. (Section M1.1)

- A planned outage to make extensive modifications to increase the margin of the cooling capacity of the "A" emergency diesel generator (EDG) went well. Maintenance workers showed good attention-to-detail and issues identified during the post work test were properly resolved. (Section M1.1)

- A review of the corrective maintenance backlog revealed that the backlog was within the licensee's upper control band. Further, the Maintenance Manager established a goal to reduce the backlog from 390 to 200 by the end of 2000. (Section M2.1)

- The overall plant material condition was good. Degraded plant equipment conditions were identified timely and appropriately entered into the work control system for correction. (Section M2.1)

Engineering

- Overall, the quality of post-work tests for maintenance items was determined to be good. However, the quality of those developed for engineering maintenance requests was less rigorous than those for corrective maintenance requests. Out of approximately 50 engineering maintenance requests issued in 1999, the retest for four were not fully developed. (Section E4.1)

- An engineering self-assessment was determined to be acceptable. The assessment noted recurring problems with the quality or thoroughness of engineering reviews. As of the end of this period, the evaluation was not commenced and had exceeded the scheduled end date without an extension. (Section E7.1)

Plant Support

- The licensee made progress in reducing the amount of contaminated plant areas such as the torus room. This is viewed as a positive step to assists personnel in their normal work activities. (Section R2)

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ATTACHMENTS

REPORT DETAILS

Summary of Plant Status

Pilgrim Nuclear Power Station (PNPS) began the period at 100 percent core thermal power. On December 27, 1999, reactor power was reduced to approximately 70 percent in response to a second point feedwater heater high level alarm. After repairs to the level controllers, power was restored 100 percent. On January 11, 2000, reactor power was reduced to 75 percent to perform a control rod sequence exchange. After the rod patten adjustment was complete, operators restored power to 100 percent.

I. OPERATIONS

O1 Conduct of Operations[1]

O1.1 General Comments (71707)

Using Inspection Procedure 71707, the inspector conducted frequent reviews of ongoing plant operations, including operator evaluations in the control room; walk-down of the main control boards; tours of radiological controlled areas; and observations of management planning meetings. The inspector observed that proper control room staffing was maintained. Shift briefings and turnovers were well conducted with good discussion on degraded equipment and compensatory measures. The inspector observed that management meetings were widely attended and discussions included present plant conditions and identified equipment problems. During tours of reactor plant spaces, the inspector noted improvement in the access to various reactor plant spaces (refer to section R2).

The inspector monitored operator response to the December 27, 1999, loss of "B" train feedwater heating level controllers. In accordance with procedure 2.4.150, operators lowered power to approximately 70% reactor power. Maintenance troubleshooting identified and corrected a loose power supply to several feedwater heater level controllers. Operators interfaced well with maintenance and reactor engineers. The unit was returned to full power without any problems.

From December 31, 1999, at 10:00 p.m. to January 1, 2000, at 5:00 a.m., the inspector was in the control room and monitored the effect of Y2K rollover on the overall plant performance. As a precautionary measure, the licensee supplemented the plant normal staff, manned its technical support center, and tracked industry wide problems for their applicability to Pilgrim. The licensee also developed a test procedure which contained contingency plans and established plant conditions to minimize the impact of any Y2K related problems. For example, operators locked-up the scoop tube on one of the recirculation system pump motor-generator sets in case of a problem with the digital speed controllers.

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[1]Topical headings such as O1, M8, etc., are used in accordance with the NRC standardized reactor inspection report outline. Individual reports are not expected to address all outline topics.

No significant problems were encountered at the plant due to the Y2K rollover. A few minor problems were found by the licensee that were entered into their corrective action process. These included a trend function of the 3D monicore computer where the computer did not display all of the data. The problem did not prevent the computer from calculating core power and thermal limits. Subsequent licensee analysis determined the problem was not significant and was due to database corruption and not specifically due to the Y2K rollover. The inspector determined that the plant was not significantly affected by the Y2K rollover and that the licensee took adequate measures.

On January 11, 2000, the inspector monitored the planned reactor down-power to perform a control rod sequence exchange. Power was reduced to 75 percent in accordance with procedure 2.1.14 and power maneuver plan MAN.C13-08. The inspector noted excellent three way communication between the nuclear operating supervisor (NOS), reactor operators and reactor engineering personnel. The NOS held frequent briefings to update control room personnel on the status of the plant. Good teamwork and a good questioning attitude were displayed by the reactor operators during the power maneuver.

During this inspection period, a one week operations department assessment was performed by the Entergy Assessment Corporate Group. The team included individuals from Entergy and other nuclear utilities. The assessment was to determine the adequacy of the Pilgrim Station operations program. Focus areas included: effective management and leadership, performance of work activities and human performance. The inspector concluded that the assessment was acceptable. Several areas for improvement were identified that were appropriately placed in the licensee's corrective action program (reference problem reports 99.2509 and 99.3135).

O4 Operator Knowledge and Performance

O4.1 Effectiveness of the Identification, Evaluation and Corrective Actions of Human Performance Events

a. Inspection Scope (71707/40500/93702)

As an initiative inspection identified in the PNPS mid-cycle Plant Performance Review (PPR) completed by the NRC on September 30, 1999, the inspector randomly selected several human performance related events to assess the quality of the licensee apparent or root cause evaluations. The review included interviews with reactor and senior reactor operators involved in the events, the root cause evaluators, applicable engineering personnel and operations department management . The inspector also reviewed the corrective actions for adequacy.

b. Observations and Findings

b.1 Inadvertent Reactor Core Isolation Cooling (RCIC) System High Steam Flow Isolation

The first event involved the inadvertent engineered safeguard feature (ESF) actuation during a reactor plant start-up on September 18, 1999, as described in NRC Inspection report 05000293/1999006 and licensee event report no. 05000293/1999010. Problem Report (PR) 99.9539 was written to document, evaluate and correct this condition. The licensee determined the root cause of the event to be a human error by the reactor operator who jogged open MO-1301-16 several times without waiting for adequate system response. Two contributing causes included inattention-to-detail and perceived pressure to complete the task.

The perceived time pressure resulted from an earlier problem when the operating crew recognized that neither the high pressure coolant injection (HPCI) nor RCIC had been placed in service prior to exceeding 150 psig reactor pressure. Within the next 13 minutes, the operating crew placed HPCI in service and were unisolating RCIC when the isolation occurred. No pre-evolutionary briefing was held for either evolution.

The licensee's review found no problems with RCIC system equipment. Review of plant computer traces indicate that the operator had jogged the valve in the open direction several times during a 1 to 1.5 minute period prior to the isolation. Based on the plant computer traces, the system engineer estimated that the valve was approximately 70 percent open when the isolation occurred. This indicated a fast pace in placing the system into service. The procedural guidance was to crack the valve open to avoid a water hammer event.

The inspector noted there were other contributing factors and relevant information to this event that were not listed or discussed in the evaluation that affect the outcome of the root cause. These included:

a. Procedure 2.2.22 stated to "crack open MO-1301-16 slowly" to avoid a water hammer event. It did not reference the possibility of a high steam flow isolation. Also, the unique valve design and operating characteristics of MO-1301-16 were not discussed in the procedure. This valve is a split wedge gate valve and has some free movement designed internally which adds some lost motion to the valve operating stroke. This information did not become evident until a month later when a different reactor operator had to unisolate the RCIC steam line and did not get the expected response. Therefore, the root cause review of the initial event did not highlight the unique valve features.

b. Operators were not fully trained on the need for cautious operation of MO-1301-16 when opening the valve during low pressure situations. The valve characteristics and system response is different at low vice rated pressure. In addition, the system is more frequently unisolated at rated

steam pressure during routine surveillance testing rather than at low pressure conditions during reactor start-up. Hence, unisolating RCIC at low steam pressure is a non-routine activity. Lastly, steam density changes at lower pressure results in less margin to the high steam flow isolation set point. Collectively, these factors indicate training weaknesses.

c. The time delay relay set point for the high steam flow isolation was lowered in April 1999. The change reduced the time delay to the high steam flow isolation by approximately 30%. This was not identified by the licensee as part of the root cause review. The inspector determined this to be a weakness in the root cause since the change reduced the margin to an inadvertent RCIC steam line isolation

d. The inspector learned during interviews that two senior reactor operators (SROs) were in the control room providing direct oversight when the reactor operator jogged open MO-1301-16. The inspector noted that no problems were identified or changes ordered by the SRO providing oversight. This indicated that the SRO oversight was not effective and contributed to this event.

e. The inspector identified that the root cause evaluator never directly interviewed the operators involved with the event. Rather, the evaluator relied on second or third hand information from operations management and the documentation from the critique. The inspector discussed this and expressed concern to operations management.

The inspector informed operations management of the above relevant information which was not adequately documented, discussed or ruled out as part of the evaluation. Further, the inspector determined that there was little acceptance at the working level of the licensee developed root cause. The inspector noted the root cause effort was fragmented, showed poor communications within the operations department, and the root cause evaluator did not directly interview the operators involved with the event. The operations manager acknowledged the inspectors concerns and indicated a further operations management review would be considered.

b.2 Condenser Waterbox Vapor Valves Left Open During Backwash Operations

The second event also occurred on September 18, 1999, and resulted in the need to trip the main turbine during a plant start-up. At the time of the event, the “B” seawater pump was isolated for condenser backwash operations to allow divers in the intake structure to vacuum mussels. The vapor valves for the isolated condenser water boxes were inadvertently left open and resulted in lowering condenser vacuum. Operators detected this condition and manually tripped the turbine as a precautionary measure. The licensee apparent cause review identified “misjudgement, misinterpretation of Information” by the reactor operator as the cause. The operator became confused with the procedural guidance and performed the wrong restoration steps and missed closing the

vapor valves. A contributing cause was identified as the lack of proper self-checking techniques by the reactor operator.

The inspector interviewed personnel involved in the event and also reviewed the procedural guidance. The inspector identified some relevant information about the event that was not discussed in the apparent cause evaluation. The backwash procedure consists of a main body with several attachments which referenced each other. The specific step misunderstood by the operator was somewhat clear; however, the procedure was generally cumbersome and complex to follow as one transitioned back and forth between the main body and attachments, and between attachment to attachment. Operations support personnel made a minor procedure revision to clarify the missed step. However, the NRC identified that during a subsequent backwash evolution that the human factors in the procedure were still poor and remained a concern to operations personnel. Operators issued PR 99.2707 to document this problem to obtain corrective actions.

The inspector expressed concern regarding the backwash procedure quality to the operations support leader. Subsequently, operations support initiated a broad re-write of the procedure to improve the overall procedure quality and human factors. The inspector determined that problems with procedure quality contributed to this event and were not discussed in the licensee apparent cause review.

The condenser backwash activities lasted several hours and spanned two different shifts of SROs. At the time of the event, the RO and SROs were on different shift rotations. The reactor operator involved in this event was briefed in detail on the first two segments of condenser activities, but was not briefed in detail on the condenser vacuuming portion. The SRO performing the brief thought the next shift would rebrief before continuing on to the mussel vacuuming. Additionally, the copy of the procedure given to the reactor operator did not contain all applicable sections of the procedure. The NRC identified that the shift turnover of the SROs and not having a complete copy of the procedure in hand were additional contributing factors to the event. These factors were not discussed in the apparent cause evaluation.

The NRC identified during interviews that the reactor and senior reactor operators involved in this event were not directly interviewed by the apparent cause evaluator. The inspector again considered this to be a weakness in the event follow-up evaluation process.

The inspector concluded that the apparent cause identified by the licensee, misinterpretation of written information, was correct. However, there were other relevant contributing factors not identified by the apparent cause evaluation.

b.3 Condenser Waterbox Vent Valves Found Closed

On December 19, 1999, an SRO on plant tour found condenser water box vent isolation valves, 27-HO-3, 4, 7 and 8, in the closed vice normally open position.

The valves were opened and PR 99.3024 initiated to document, review and correct the cause of this event. The licensee found that the event resulted when a reactor operator marked a procedural step in the condenser backwash procedure as “not performed” (N/P) when in fact it should have been performed. Therefore, the licensee thought that the procedure had been successfully completed, when in fact, a step in the procedure was not completed. The NOS review of the completed procedure did not identify the missed step. The operator sought clarification and approval from the nuclear operations supervisor (NOS) prior to marking the step as N/P.

As an initial corrective action, operations management issued Standing Order 99-07 which requires the NOS to initial steps that are marked as N/P. Also, the procedure was revised to add a restoration checklist, thus the inspector noted procedure quality was a contributing factor in this event.

The NRC identified that the apparent cause write-up was vague and not concise. The write-up listed several facts, but contained no assessment or conclusion. The inspector informed the assistant operations manager who acknowledged the concern and indicated the apparent cause would be revised to clearly state the cause(s) of the event.

b.4 Broader Operations Human Performance Improvements

As a result of the several recent human performance errors in the operations department, the licensee initiated a broad review of operations performance as documented in PR 99.2509, Adverse Trend of Human Performance Errors. A licensee root cause was completed which concluded that operations management was slow to detect an adverse human performance trend and initiate an effective error prevention and reduction strategy. Several contributing causes were also identified. A number of corrective actions have been developed for implementation. The inspector determined that this root cause was detailed, well thought out and self-critical.

The Plant Manager informed the inspector that two teams have been formed to evaluate and enhance human performance. The first team is called the Performance Improvement Review Team (PIRT) and was composed of a cross section of personnel including those at the working level. The purpose of the team is to provide a multi-disciplined review of plant issues and events to improve human performance. The team will review the effectiveness of corrective actions and the quality of root and apparent cause analyses. This team is scheduled to be permanent. As part of this effort, the licensee reviewed the last 12 months of operations human performance events to identify any common causes. The review found self checking and failure to follow procedures as the most frequent causes. Corrective actions are planned to address these areas.

The second team was formed for a limited duration to develop a site wide human performance improvement program which includes industry operating experience. This team has a limited one time charter.

The Plant Manager informed the inspector of several other corrective actions that should improve the quality of root and apparent cause evaluations. The recent addition of a previously licensed SRO into the operations support group was viewed as an improvement. Also, additional root cause training is planned for several members of the operations support group and other personnel as necessary. Further, the root and apparent cause evaluations were re-assigned to a different individual. The inspector determined these actions should help improve the review and corrective actions to address human performance issues.

c. Conclusions

During an independent review of the root cause analyses for several recent human error events, the NRC concluded that the licensees apparent and root cause determinations overlooked significant contributors to the events especially involving procedure clarity and training of the staff. The root cause evaluator did not directly interview personnel involved in the events, which adversely affected the cause determinations.

Operators were not briefed in a timely fashion on the results of relevant root and apparent cause evaluations. This contributed to a lack of acceptance of the cause and corrective actions for operational events.

Several broader and long term corrective actions are in progress and being implemented to address human performance issues. RO's and SRO's were recently placed on the same work hour shifts to bolster the shift concept and to emphasize shift accountability. Also, changes and improvements were made in the operations support group to improve the quality and consistency of apparent and root cause evaluations, and to improve the quality of procedures.

II. MAINTENANCE

M1 Conduct of Maintenance

M1.1 General Maintenance

a. Inspection Scope (61726,62707)

The inspector observed portions of selected maintenance and surveillance activities to verify that the applicable procedures and technical specifications were satisfied.

b. Observations and Findings

The inspector observed all or portions of the following activities:

8.M.2-2.9, "Safeguards Area High Temperature Functional and Calibration"

The inspector monitored the performance of surveillance 8.M.2-2.9. The surveillance functionally tests the applicable temperature switch for each of the reactor building quadrant area coolers. The inspector noted that procedures were used in both the local and remote test areas. There was good procedure use and attention-to-detail by the I&C technicians. The technician manipulating the fan demonstrated good self-checking techniques. The equipment operated properly and no unusual problems were experienced during the surveillance activity.

8.Q.3.2, "RHR/Core Spray Pump Motor Preventive Maintenance"

The inspector monitored the performance of the residual heat removal (RHR) pump motor megger, including verifying proper equipment isolation and test equipment calibration. The inspector noted that work was delayed several hours due to personnel availability.

The delay in performing the work increased the unavailability hours for the system as tracked by the maintenance rule. However, the pump unavailability was well within established goals. No problems with the test equipment or system isolation were identified by the inspector.

"A" Emergency Diesel Generator (EDG) Planned Outage

The maintenance staff performed numerous preventive and corrective maintenance tasks, and implemented several modifications to improve the cooling capacity of the "A" EDG. Work teams were established that consisted of workers of various skill level. Personnel not normally assigned as maintenance workers were under the direction of the normal maintenance staff. The inspector observed portions of the replacement of the engine driven fan blades and the installation of new radiators which were considered a significant upgrade. No problems were identified by the inspector.

Problems identified during a comprehensive post work test (PWT) were properly resolved. Subsequently, the inspector attended a lessons learned meeting where the licensee evaluated what worked well and opportunities for improvement. The opportunities for improvement are scheduled to be incorporated during the same work on the "B" EDG later this year.

c. Conclusions

Good procedure adherence and self-checking techniques were displayed during observed maintenance and surveillance activities. The activities observed and reviewed were performed safely and in accordance with approved procedures.

A planned outage on the "A" EDG went well. Maintenance workers showed good attention-to-detail and issues identified during the post work test were properly resolved.

M2 Maintenance and Material Condition of Facilities and Equipment

M2.1 Degraded Equipment Identification

a. Inspection Scope

The inspectors performed periodic tours of reactor plant spaces including the reactor building, turbine building, diesel generator rooms and the intake structure to assess the plant material condition.

b. Observations and Findings

The overall plant condition was good. The inspector verified that existing deficiencies in the field were identified by the licensee and entered into the work control system for timely repair. For example, a broken high pressure cooler injection conduit and also a broken bolt on the station black out diesel generator cooling water return header support were correctly entered into the work control system and scheduled for corrective maintenance in the near term.

The inspector questioned the status of maintenance request (MR) 19803037 for the reactor building closed cooling water system flow transmitter, FT-6263, that was generated on December 29, 1998. This MR documented calibration and repeatability problems with FT-6263. The MR was still in the planning stage. The inspector noted that the transmitter was used for indication only with no protection or control function. The maintenance manager later informed the inspector this work was scheduled for April 10, 2000. The inspector had no further questions or concerns.

Two lower level degraded equipment conditions were identified by the inspector which had not been identified by the licensee. Neither deficiency caused an operability problem. The first condition involved cooling water leakage from drain valve HO-502A on the "A EDG lube oil cooler. The water/glycol leakage flowed across the floor and down into the floor drain. The inspector notified the SRO on watch who had the WIN

team tighten the packing and stop the leak. The second degraded condition involved loose clamps that secured a nitrogen supply line to the drywell. The WIN team also tightened these clamps. The inspector had no further questions or concerns.

The inspector reviewed the trend of the corrective maintenance request backlog as of January 1, 2000. There are 390 open MRs, this is in the upper control band of 200 to 400. The Maintenance Manager informed the inspector that the goal was to reduce the backlog to at least 200 by the end of the year. Some factors that have affected the backlog reduction were the cycle 12 refueling outage that ended in July 1999 and two subsequent unscheduled plant outages. The inspector had no further questions or concerns.

c. Conclusions

The overall plant material condition was good. Degraded plant equipment conditions were identified and entered into the work control system for correction.

A review of the corrective maintenance backlog noted that the overall number was in the upper control band. The maintenance manager established a goal to reduce the number from 390 to 200 by the end of 2000.

III. ENGINEERING

E4 Engineering Staff Knowledge and Performance

E4.1 Post-Work Testing

a. Inspection Scope (37551/62703)

The inspector reviewed problem reports (PRs) issued in 1999 to determine if an adverse trend existed in the adequacy of post-work and/or post-modification testing. The inspector had previously identified a few minor cases where the post-work and post-modification tests did not sufficiently test the intent of engineering modifications and/or the maintenance work performed.

b. Observations and Findings

A review of PRs issued in 1999 revealed four items dealing with inadequate retest. These included: PRs 99.9587, 99.9663, 99.9666 and 99.9673. All of the items identified involved retests developed for modifications to the plant; none for normal corrective maintenance activities. A review of the maintenance data base revealed that approximately 3050 work orders were generated for corrective and engineering maintenance requests within the past year; 3000 corrective maintenance and 50 engineering maintenance requests. The inspector informed the licensee of the apparent post-modification testing inadequacy and was informed that the engineering department is currently in the process of performing a self-assessment in this area.

For each of the above identified deficiencies, the licensee determined that the applicable system/component was operable. The inspector verified that the licensee immediately corrected the identified condition, revised the post-work test if necessary, and properly tested the component.

c. Conclusions

Overall, the quality of post-work tests for maintenance items was determined to be good. However, the quality of those developed for engineering maintenance requests was less rigorous than those for corrective maintenance requests. Out of approximately 50 engineering maintenance requests issued in 1999, the retest for four were not fully developed.

E7 Quality Assurance and Engineering Activities

E7.1 Engineering Self-Assessment

a. Scope (37551)

The inspector reviewed the engineering department self assessment dated December 22, 1999. The assessment was initiated in response to NRC identified concerns regarding engineering department support to operations and maintenance (refer to the PNPS mid-cycle Plant Performance Review, dated September 30, 1999). The assessment evaluated engineering's human performance record and its role in recent plant events.

b. Observations and Findings

The assessment noted that insufficient engineering reviews across many types of engineering products have caused or contributed to recent plant events. In response to the self-assessment, the licensee generated problem report (PR) 99.2988 to document, evaluate and correct this condition. The licensee classified the PR as a significant condition adverse to quality (SCAQ) which requires a complete root cause analysis. The inspector found the assessment to be acceptable.

As an immediate corrective action, the Engineering Group Director implemented a group stand-down where the department managers reviewed the results of the assessment with their staff. The managers stressed the need to take the time necessary to perform quality reviews despite implied schedular constraints, and informed the staff that they should notify their manager if they do not feel technically qualified to perform a thorough review. A review of the PR revealed that the root cause investigation was scheduled to be completed by January 15, 2000. Discussions with the licensee on the status of the investigation revealed that a team had not yet been put in place to determine the root cause and necessary corrective actions. The licensee subsequently extended the due date to February 29, 2000.

c. Conclusions

An engineering self-assessment was determined to be acceptable. The assessment noted recurring problems with the quality or thoroughness of engineering reviews. As of the end of this period, the evaluation was not commenced and had exceeded the scheduled end date without an extension.

IV. PLANT SUPPORT

R2 Status of RP&C Facilities and Equipment

During tours of the radiological controlled area (RCA), the inspector verified that high radiation and contaminated areas were properly posted with radiological warning signs. In addition, the inspector checked for worker compliance with the requirements contained in radiation work permits and verified appropriate use of personnel monitoring devises.

Through plant tours and discussions with the Radiation Protection Manager, the inspector noted that the percentage of clean space (not contaminated) for normal access areas has increased since the completion of the cycle 12 refueling outage (RFO). Prior to RFO 12, approximately 89 percent of the normal accessed areas were clean. During the outage several plant areas became contaminated due to maintenance work activities. These included the refueling floor, the torus room and RHR valve rooms. Since the completion of the outage on July 13, 1999, the licensee has made a concerted effort to regain access to these areas. Presently, 94 percent of normal access areas are clean. The licensee's goal is to have 98 percent of frequently accessed areas clean within the next two months. The effect of decontaminating plant spaces should assist personnel in their normal work activities.

V. MANAGEMENT MEETINGS

X1 Exit Meeting Summary

The inspector met with the licensee representatives at the conclusion of the inspection on January 27, 2000. At the time, the purpose and scope of the inspection were reviewed, and preliminary findings were presented. The licensee acknowledged the preliminary inspection findings presented by the inspector at the exit meeting.

ATTACHMENT 1

INSPECTION PROCEDURES USED

IP 37551:	Onsite Engineering
IP 40500:	Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems
IP 61726:	Surveillance Observation
IP 62707:	Maintenance Observation
IP 71707:	Plant Operations
IP 71750:	Plant Support Activities
IP 82301:	Evaluation of Exercises for Power Reactors
IP 92700:	Onsite Followup of Written Reports of Nonroutine Events at Power Reactor Facilities
IP 92901:	Followup - Operations
IP 92902:	Followup - Maintenance
IP 92903:	Followup - Engineering
IP 92904:	Followup - Plant Support
IP 93702:	Prompt Onsite Response to Events at Operating Power Reactors

ITEMS OPENED, CLOSED, AND UPDATED

None

LIST OF ACRONYMS USED

DRP	Division of Reactor Projects
EDG	Emergency Diesel Generator
ESF	Engineered Safeguard Feature
HPCI	High Pressure Coolant Injection
IR	Inspection Report
LER	Licensee Event Report
MR	Maintenance Request
NOS	Nuclear Operating Supervisor
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
PNPS	Pilgrim Nuclear Power Station
PPR	Plant Performance Report
PR	Problem Report
PSIG	Pounds Per Square Inch Gauge
PWT	Post Work Test
RCA	Radiologically Controlled Areas
RCIC	Reactor Core Isolation Cooling
RFO	Refueling Outage
SROs	Senior Reactor Operators
Y2K	Year 2000