ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket Nos.:	50-275 50-323
License Nos.:	DPR-80 DPR-82
Report No.:	50-275/97023 50-323/97023
Licensee:	Pacific Gas and Electric Company
Facility:	Diablo Canyon Nuclear Power Plant, Units 1 and 2
Location:	7 1/2 miles NW of Avila Beach Avila Beach, California
Dates:	November 23, 1997 through January 3, 1998
Inspectors:	David L. Proulx, Senior Resident Inspector Donald B. Allen, Resident Inspector Brad J. Olson, Project Inspector, Region IV
Approved By:	Howard J. Wong, Chief, Reactor Projects Branch E

ATTACHMENTS:

Attachment 1: Supplemental Information

EXECUTIVE SUMMARY

Diablo Canyon Nuclear Power Plant, Units 1 and 2
NRC Inspection Report 50-275/97023; 50-323/97023

This inspection included aspects of licensee operations, maintenance, engineering, and plant support. The report covers a 6-week period of resident inspection.

Operations

- Work planning for control room painting warranted improvement because the configuration of the control room ventilation, the location of the compressor, and the effects of the painting on the control room charcoal filters were not formally preplanned or analyzed. Operators took prudent and conservative action to minimize distractions and mitigate the effects of fumes in the control room during the painting (Section O2.1).

- A noncited violation was identified for failure to maintain the design basis of an auxiliary feed pump. A ventilation flow path for the auxiliary feed pump rooms was inadvertently blocked (Section O8.3).

Maintenance

- Auxiliary Salt Water (ASW) vault check valve maintenance did not include a post maintenance test to demonstrate that the valve was installed properly. However, the task was performed properly in accordance with the work order. (Section M1.2).

- Surveillance tests observed were performed well (Section M1.3).

- Plant material condition was generally good and continued to improve during this inspection period. Minor leaks and concerns were noted such as leaking centrifugal charging pumps, leaking electro-hydraulic control fluid on Unit 1, and degraded Unit 2 turbine end seals (Section M2.1).

- A noncited violation was identified with three examples of failure to implement surveillance requirements (Section M8).

Engineering

- Engineering personnel provided a timely and technically sound response to concerns with the design basis of the plant's response to a spurious safety injection signal (Section E1.1).

- The operability evaluation associated with containment fan cooler unit motor cracked welds was technically sound and had good engineering basis (Section E2.1).

Plant Support

- Routine personnel radiation practices were performed well (Section R1.1).
- Routine security practices were performed well (Section S1.1).

Report Details

Summary of Plant Status

Unit 1 began this inspection period at 100 percent power. Unit 1 continued to operate at essentially 100 percent power until the end of this inspection period.

Unit 2 began this inspection period at 100 percent power. Unit 2 continued to operate at essentially 100 percent power until the end of this inspection period.

I. Operations

O1 Conduct of Operations

O1.1 General Comments (71707)

The inspectors visited the control room and toured the plant on a frequent basis when on site, including periodic backshift inspections. In general, the performance of plant operators was professional and reflected a focus on safety. Operators continued to perform well in utilizing three-way communications, and operator responses to alarms were observed to be prompt and appropriate to the circumstances. Limiting conditions for operation were properly entered, as required.

O2 Operational Status of Facilities and Equipment

O2.1 Painting Control Room Panels

a. Inspection Scope (71707)

The inspectors evaluated the licensee's planning and execution of painting of the control room electrical panels to ensure that this evolution did not adversely impact safe operation of the facility.

b. Observations and Findings

On December 31, 1997, the inspectors noted that the licensee was preparing to paint the lower skirts of the control room main control board panels. This evolution was to be done by hand using sprayers. The inspectors were concerned that the paint would introduce fumes that would affect the operators and cause the control room ventilation system charcoal filters to become inoperable. In addition, the inspectors were concerned that paint spray could cause control room instruments to be inoperable and the noise of the sprayers could distract the operators from their licensed duties.

The inspectors discussed the licensee's plans with the operations manager. The operations manager provided the inspectors with copies of the risk assessment and work order C0155269 associated with the job. The risk assessment stated that preparations for and painting of the control boards was considered a high risk job. For contingencies, the risk assessment required a briefing of the workers, an operations walkdown with the work crew, and the supervisor to check-in with the shift foreman. In addition, the painters employed a water-based rather than enamel paint to minimize the effect of fumes on the control room envelope. This action was taken in response to a 1995 action request in which paint fumes became intolerable to the point of several operators having to exit the control room for fresh air. The inspectors considered the licensee's preparations to be acceptable with the following concerns.

The inspectors asked the operations manager how the licensee had analyzed the effect of the painting on the operability of the control room emergency filtration charcoal filters. The licensee stated that they would perform an after-the-fact evaluation should the system inadvertently actuate. The inspectors considered this to be nonconservative because volatile organic compounds found in most paints were known to be detrimental to charcoal filtration.

The licensee noted that certain aspects of the task were not formally documented in the work plan. The work plan did not address the location of the compressor for the paint sprayers. At the start of the job, the paint crew planned to locate the compressor such that control room doors would be propped open. The shift supervisor rejected this plan, and instead the compressor was relocated to the shift supervisor's office with the lines to the sprayers running under the door. The inspectors noted that this configuration precluded propping open any doors and kept the noise to a minimum. In addition, the work order or risk assessment did not formally discuss methods to remove fumes. Prior to the task, operators placed the control room envelope in mode 2 operation which provides 100 percent makeup of outside air. This action minimized the effect of fumes on control room personnel. The inspectors noted that the painting activities were executed well overall. The inspectors concluded that although operators took prudent and conservative action to minimize distractions in the control room, and mitigate the effects of fumes, the work planning warranted improvement because the configuration of the control ventilation and the location of the compressors occurred just prior to work initiation and should have been considered in the work planning process.

c. Conclusions

Work planning for control room painting warranted improvement because the configuration of the control room ventilation, the location of the compressor, and the effects of the painting on the control room charcoal filters were not formally preplanned or evaluated. Operators took prudent and conservative action to minimize distractions and mitigate the effects of fumes in the control room during the painting.

O8 Miscellaneous Operations Issues (92700, 92901)

O8.1 (Closed) Violation 50-275/96019-02: failure to report off clearance prior to removing ground buggies. This violation was cited for not following procedures when removing ground buggies from 4 kV auxiliary feeder breakers. As a result of this occurrence, and more significantly, an October 1995 event in which an auxiliary transformer failed due to improper installation of ground buggies, the licensee implemented new controls for the use ground buggies. The licensee revised procedures for clearances and tag-outs, electrical maintenance, and energization of electrical busses. As documented in NRC Inspection Reports 50-275/97-01 and 50-275/97-06, inspectors observed actions to re-energize electrical buses during a Unit 1 refueling outage. The licensee's actions were performed using the revised process for the control of ground buggies. The inspectors observed that the activities were performed in a deliberate manner, with self and peer-checking evident. The inspectors also documented that the operators were well aware of how inadequate ground buggy control led to the failure of an auxiliary transformer. During this inspection period, the inspectors reviewed the procedure changes made for the control of ground buggies. The inspectors had no additional comments regarding the licensee's corrective actions.

O8.2 (Closed) Violation 50-323/96-009-01 and Licensee Event Report (LER)50-275/95-006-00: loads moved over the spent fuel pool with the ventilation system not capable of being powered automatically from an operable emergency power source. The violation was issued after multiple instances where the licensee did not maintain the fuel handling building ventilation system operable when required by Technical Specifications. Included in these instances was an event described in LER 50-275/95-006-00. The licensee determined that the root causes of the events were somewhat different, but all were attributed to personnel errors. As corrective actions for the violation and the LER, the licensee counseled personnel, provided lessons learned, and changed procedures to ensure that emergency power was available to the ventilation systems. The inspectors noted that the licensee had not experienced a recurrence of this problem during recent refueling outages. The inspectors reviewed the licensee's corrective actions and found them acceptable.

O8.3 (Closed) LER 50-275/96-009-00: auxiliary feedwater pump inoperable due to inadvertent blockage of a ventilation flow path. This LER was submitted after the licensee discovered a steel plate blocking the ventilation path from the turbine drive auxiliary feedwater pump room. The licensee removed the steel plate and determined that the condition could have caused the environment in the room to exceed conditions assumed in the steam line break analysis. The licensee reviewed other ventilation flow paths to identify hatches or grates which could be readily blocked and affect air flow required to meet plant or system operation. The licensee installed signs to warn personnel not to block the identified hatches or grates. The inspectors reviewed the licensee's corrective actions and verified the installation of signs. The inspectors found the licensee's corrective actions to be acceptable.

Failure to maintain the design basis of the auxiliary feed pump is a violation of 10 CFR Part 50 Appendix B, Criterion III. However, this licensee-identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (50-275/97023-01).

II. Maintenance

M1 Conduct of Maintenance

M1.1 Preventative Maintenance on Solenoid Trip Box (Unit 2)

a. Inspection Scope (62707)

The inspectors observed portions of work orders AT MM AR0443341, C0155045, and C0152077, "Remove Turbine Trip Solenoid Box" and "Inspect and Lubricate Trip and Throttle Valve for Auxiliary Feed Water Pump 2-1."

b. Observations and Findings

Maintenance personnel were knowledgeable of the equipment, procedures, and tasks to be performed. The work documents and applicable procedures were at the work site, and were used and signed as the work progressed. The system engineer was present and assisted in the removal of the turbine trip solenoid box, which had been abandoned in place. Clearance tags were hung to protect the equipment and personnel.

c. Conclusions

The maintenance activities were performed in accordance with the procedural requirements. The personnel performing the activity were knowledgeable of the equipment, procedures, tools and methods used. The results of the maintenance appeared to be effective in ensuring the components will function as designed.

M1.2 ASW Vault Check Valve Preventive Maintenance (Unit 1)

a. Inspection Scope (62707)

The inspectors observed performance of work order R0177189, "ASW Vault Check Valve SW-2-988 Inspection and Preventative Maintenance."

b. Observations and Findings

NRC Inspection Report 50-275;323/97014 discussed issues associated with improper maintenance of the ASW vault check valves. The inspectors noted in that report that the preventative maintenance task of cleaning and inspecting these valves revealed the valves to be frequently stuck open. Because these valves were

part of the design basis to mitigate flooding in the intake structure, the valves were considered important to safety. Part of the corrective actions for this previous concern included more frequent valve inspections and improvements to the work procedure.

On December 31, 1997, the inspectors noted that the work order required a flush of the ASW vault drain piping while the valve was removed from the system for cleaning and inspecting. The inspectors noted that this was an improvement because the flushes had previously been performed following reinstallation of the check valves. Performing the flushes following reinstallation may have resulted in debris being lodged in the valve internals and rendering the check valves inoperable.

During the valve inspection, the inspectors noted only sedimentation in the valve internals, which was documented in the work package by the system engineer. This minor sedimentation did not appear to render the valve inoperable. Following valve inspection and cleaning, the mechanics installed the valve and tightened the flange nuts properly.

After completion of the work, the inspectors noted that the work package did not contain a post maintenance test. The inspectors discussed this concern with the system engineer and the supervisor. The licensee considered that no additional information could be gained by a post maintenance test because of the redundant verification of proper valve installation. In addition, the licensee stated that if the check valves were installed backwards, operators would have ample time to respond to any potential flooding that could affect the ASW pumps. The inspectors noted that draining water through the ASW vault drain lines as a post maintenance test would demonstrate that the valves were installed properly to provide additional assurance that the valves were operable. Licensee management agreed with the inspectors' concerns and indicated that the procedure would be changed to include a post maintenance test.

c. Conclusions

Auxiliary Salt Water (ASW) vault check valve maintenance did not include a post maintenance test to demonstrate that the valve was installed properly. However, the task was performed properly in accordance with the work order.

M1.3 Surveillance Observations

a. Inspection Scope (61726)

Selected surveillance tests required to be performed by the Technical Specifications were reviewed on a sampling basis to verify that: (1) the surveillance tests were correctly included on the facility schedule; (2) a technically adequate procedure existed for the performance of the surveillance tests; (3) the surveillance tests had

been performed at a frequency specified in the Technical Specifications; and (4) test results satisfied acceptance criteria or were properly dispositioned.

The inspectors observed all or portions of the following surveillances:

- STP M-9I Diesel Generator Testing Frequency Determination, Revision 12
- STP M-9A Data Sheet - Routine Surveillance Test of Unit 1 Diesel Generators, dated 10/1/97
- STP V-3R5 Exercising Steam Supply to Auxiliary Feedwater Pump Turbine Stop Valve, FCV-95, Revision 10
- STP M-16N1 Slave Relay Test for Operation of Interposing Relays for FCV-95 (K632AX and K632BX), Revision 1

b. Observations and Findings

Prior to the performance of Procedure STP M-9A, operations performed a briefing in the control room. The briefing was thorough, covering the purpose of the test, expected results, interface and communications with personnel at the diesel generator, precautions and limitations, as well as the significant procedural steps. The operators performed well in coordinating their timing of the diesel start parameters to determine minimum operating parameters of speed, frequency, and voltage.

The steam supply to the auxiliary feedwater pump turbine Valve FCV-95 was exercised as directed by the surveillance Procedure STP V-3R5. The operator performing the test was knowledgeable of the equipment operation and procedural requirements. The operators properly documented the test results, which demonstrated that the valve stroke time met the test requirement.

c. Conclusions

The inspectors found that the surveillances observed were being scheduled and performed at the required frequency. The procedures governing the surveillance tests were technically adequate and personnel performing the surveillance demonstrated an adequate level of knowledge. The inspectors noted that test results appeared to have been appropriately dispositioned.

M2 Maintenance and Material Condition of Facilities and Equipment

M2.1 Plant Material Condition

a. Inspection Scope (62707)

During this inspection period, the inspectors conducted routine plant tours to evaluate plant material condition.

b. Observations and Findings

- **Centrifugal Charging Pumps:** The inspectors noted that each of the centrifugal charging pumps on both units had noticeable oil leaks. These oil leaks were documented and tracked by the licensee for correction. None of these leaks posed operability concerns.

- **Electro-hydraulic Control System:** The inspectors noted minor fluid leakage near the front standard of the Unit 1 main turbine. The licensee had previously identified and documented these leaks, and was periodically adding electro-hydraulic control fluid to keep up with the leak. These leaks were scheduled to be repaired during outage 1R9.

- **Turbine End Seals:** The Unit 2 turbine end seal was degraded and the licensee was frequently monitoring its condition. This item was scheduled to be worked during outage 2R8. Further degradation of this system could lead to an unscheduled shutdown of Unit 2.

Although the inspectors observed some material condition issues, as described above, the inspectors noted that licensee management continued to properly focus on improving the overall material condition of the facility and on reducing the maintenance backlog.

c. Conclusions

Plant material condition was generally good and continued to improve during this inspection period. Minor leaks and concerns were noted such as leaking centrifugal charging pumps, electro-hydraulic control fluid, and degraded Unit 2 turbine end seals, which were entered and tracked in the licensee's work management system.

M8 Miscellaneous Maintenance Issues (92700, 92902)

M8.1 (Closed) LER 50-275/96-002-00: Technical Specification 3.6.1.1 not met due to personnel error. This LER was based on the failure to complete a routine monthly check of containment isolation valves due in part to the failure to adequately communicate the incomplete status of parts of a surveillance test. The licensee

attributed the cause of the missed surveillance to personnel error in that an operator failed to verify proper completion of a procedure. The licensee counseled the individuals involved in this issue and issued an incident summary to all operating crews. The inspectors reviewed the licensee's corrective actions and found them acceptable. The inspectors considered this item to be an isolated occurrence and not programmatic in nature. This licensee-identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (NCV 50-275/970230-02, Example 1).

M8.2 (Closed) LER 50-275/96-004-00: Technical Specification 3.3.3.5 not met due to personnel error. This LER was based on the failure to complete a routine verification of the capability of each control circuit and transfer switch for the hot shutdown panel. The licensee attributed the cause of the missed surveillance to personnel error in that a shift technical advisor thought the surveillance had been completed and incorrectly marked procedure steps as not applicable. The licensee counseled the individuals involved in this issue and generated recurring task work orders to ensure verification of future surveillances. The inspectors reviewed the licensee's corrective actions and found them acceptable. The inspectors considered this item to be an isolated occurrence and not programmatic in nature. This licensee-identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (NCV 50-275/97023-02, Example 2).

M8.3 (Closed) LER 50-275/85-043-00: Technical Specification 3.3.2 was not met due to an inadequate procedure. This LER was submitted after the licensee determined that containment purge valves had been opened numerous times without a current valid slave relay test. The licensee made their determination after reviewing a surveillance test procedure and finding that engineering personnel had failed to include the requirement for the slave relay test. The licensee also determined that, although the slave relay test had not been performed, the valves were operable and would have closed to provide containment isolation, if required. As corrective action, the licensee revised surveillance procedures to test the containment isolation function prior to entering refueling outages and to perform timing tests of isolation valves on a quarterly basis. The inspectors reviewed the licensee's corrective actions and found them to be acceptable. The inspectors considered this item to be an isolated occurrence and not programmatic in nature. This licensee-identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (NCV 50-275/97023-02, Example 3).

III. Engineering

E1 Conduct of Engineering

E1.1 Inadvertent Safety Injection Design Basis

a. Inspection Scope (37551)

The inspectors evaluated the licensee's actions with respect to action request 0449600 which addressed the design basis of the plant's response to an inadvertent safety injection.

b. Observations and Findings

Chapter 15.2.15 of the Updated Final Safety Analysis Report described the plant's response to an inadvertent safety injection event. The sequence of events assumed that the positive displacement pump (one per unit) was initially in operation. Upon initiation of the safety injection signal, both centrifugal charging pumps would initiate and immediately inject into the core. Operators would take approximately 16 minutes to diagnose the event and take action to secure the operating charging pumps and restore normal letdown. The pressurizer safety valves would lift and temporarily pass water, but would seat properly without damage in the assumed Chapter 15 safety analysis.

However, the vendor identified that a scaling factor used in the design basis calculations was nonconservative. Because of this, the Diablo Canyon Power Plant safety analysis was reviewed, and the licensee noted that damage to the pressurizer safety valves was not prevented by the existing analysis. Because of the change in analysis parameters, the pressurizer safety valves would lift and pass water more than three times, but the valves were only qualified for three water lifts.

The licensee initiated an operability evaluation that contained several interim corrective actions. The licensee altered their normal method of operation to operate a centrifugal charging pump for normal charging instead of the positive displacement pump. This action reduced the charging assumed in the Chapter 15 spurious safety injection analysis. The licensee placed an operating restriction to allow a maximum pressurizer level of 56 percent. In addition, the licensee revised the inputs to the computer code for the spurious safety injection such that each charging pump was secured sequentially, so that the assumed flow at various times during the event would be less. With the positive displacement pump secured, the restrictive pressurizer level, and the revised assumptions in the sequence of events, the vendor reanalyzed the spurious safety injection event. This new analysis revealed that the pressurizer safety valves would not pass water several times prior to operator action to mitigate the event, and were therefore operable.

The inspectors reviewed the licensee's operability evaluation and found it to be technically sound. The inspectors noted that on October 24, 1997, the licensee experienced a spurious safety injection event. Timely operator action mitigated this event and prevented pressurizer overfill as discussed in NRC Inspection Report 50-275; 323/97019. Therefore, the inspectors concluded that the licensee's reanalysis and operability evaluation to be conservative.

c. Conclusions

Engineering personnel provided a timely and technically sound response to concerns with the design basis of the plant's response to a spurious safety injection signal.

E1.2 Technical Specifications Interpretations

a. Inspection Scope (37551)

The inspectors reviewed the licensee's Technical Specifications interpretations to evaluate if they were consistent with NRC requirements.

b. Observations and Findings

NRC Information Notice 97-80, "Licensee Technical Specification Interpretations," discussed several issues in which licensees had Technical Specifications interpretations that conflicted with the specific wording of the Technical Specifications. In December 1996, Diablo Canyon personnel performed a review of their Technical Specification interpretations and identified several concerns with these interpretations. After identifying these concerns, the licensee has continued to implement these interpretations while preparing license amendments for them.

Specifically, the inspectors had concerns with Technical Specifications interpretations 88-01 (applicability of 25% grace period for conditional surveillances), 89-07 (compliance with off-site power specifications), 94-08 (allowance of centrifugal charging pump usage during low temperature/over pressure conditions), 96-05 (actions to be taken when both undervoltage relays are inoperable), and 94-07 (use of positive displacement pump during low temperature/overpressure conditions).

These items are pending further NRC review to determine the validity of the licensee's position. This is an unresolved item (URI 50-275;323/97023-01).

E2 Engineering Support of Facilities and Equipment

E2.1 Operability Evaluation of Containment Fan Cooler Units (CFCU) with Stator to Motor Frame Weld Cracks

a. Inspection Scope (37551)

Operability Evaluation 97-07, Revision 1, was reviewed to determine the technical adequacy of the evaluation and the operability of the CFCU motors with cracks in the stator compression bars to motor frame welds.

b. Observations and Findings

The licensee discovered cracks in two stator compression bar to frame welds during an inspection of a spare CFCU motor removed from Unit 1 during 1R8. Two other spare CFCU motors, offsite for repair, had similar cracked welds. Engineering operability evaluation Operability Evaluation 97-07 documented the conclusion that the ten installed CFCUs were operable.

The CFCU motors are two speed motors, with 300 and 100 horsepower ratings for high and low speed, respectively. The CFCUs were normally operated in high speed, but switch automatically to slow speed on a safety injection signal. The motor stator consisted, in part, of hundreds of thin segmented circular laminations. These laminations were held together by 3/4 inch thick circular end rings. During construction, a compressive force was applied to the end rings to hold the laminations in place. This compression force was maintained by six 25-inch long compression bars (cross sectional dimensions 2 inches by 1/2 inch) spaced at 60 degrees apart on the outside circumference of the stator. The compression bars were welded at each end to the end rings. The compression bars extended 1-3/8 inches past the end of the stator and were welded to the end frames by fillet welds. The dimensions of these fillet welds depended on the amount of filler weld necessary to properly center the stator to the end frame to ensure concentricity of the rotor to the stator. The compression bar at the base of the stator was also welded to a frame bar with two additional 1-inch welds.

Diablo Canyon Units 1 and 2 have a total of thirteen CFCU motors, five in each unit and three spares. One spare was in the cold machine shop when the weld cracks were originally identified. Prior to 1R8, the other two spare CFCU motors were sent to a vendor for wiring modifications and overhaul. During the overhaul, several weld cracks were identified and repaired by the vendor. The motors were returned and installed, but neither motor performed acceptably during testing. The motors made significant noise and did not reach rated speed during loaded testing. The motors were returned to the vendor for investigation and repair. The licensee believed that the weld repairs changed the orientation of the rotor to stator, resulting in an unbalanced magnetic pull that prevented the motors from properly operating under load.

The visual examination and evaluation of the cracks in the CFCU motor in the machine shop determined the cracks to be caused by service related fatigue. Based on this conclusion, the cracks would form and propagate as a result of cyclic loads and vibration. The greatest cyclic loads occur during starts in slow speed. The motors were routinely started in slow speed before being shifted to high speed for normal operations. Engineering assessment of the loads due to vibration during operation determined that the loads were low when compared to loads imposed when starting the machines. Engineering concluded that it was improbable that normal operating loads would propagate the weld cracks. Therefore, crack propagation appeared to have occurred during repetitive motor starts.

Cracks in similar welds were identified in the 1980s at another facility. The other licensee identified the cracks when they investigated repeated thermal overload trips of their fan cooler motors when started in slow speed. This other licensee determined that a significant contributor to the failures was an unbalanced magnetic pull which resulted from a lack of concentricity between the rotor and the stator. The corrective actions included frame weld repair and minor motor modifications. The other licensee's motor problems were limited to their ten 1969 vintage motors.

Diablo Canyon personnel performed borescope inspections of the inservice CFCU motors which had been manufactured in 1969 or 1970. The vendor provided criteria for determining whether a motor was operable. Without a specific analysis of a given configuration, if each compression bar had at least one compression bar to frame weld intact, it would perform its function. Using this criterion, the utility evaluated the two 1969 inservice motors and determined CFCU 1-5 met the vendor criteria and CFCU 2-3 did not. Three 1970 vintage CFCU motors were also inspected and met the vendor criteria. The remaining five inservice CFCU motors were manufactured later. The vendor believed the two 1978 and 1979 vintage motors had better welds. The three late 1980s and early 1990s vintage motors had a different frame design and less run time. Based on this information and no history of failures due to cracked welds in these later models, the licensee determined these CFCU motors to be operable.

The utility performed a specific analysis of the CFCU 2-3 motor and concluded it was operable based on 1) sufficient weld cross sectional area, with conservative margins, to meet the load requirements of a slow speed motor start concurrent with a seismic event; 2) the number of starts expected before 2R8 was small and crack growth was not expected to be significant prior to 2R8; and 3) a motor inspection was scheduled to be performed at approximately the mid-point between the last inspection and the start of 2R8. Additional inspections of CFCU motors of various vintages were tentatively planned prior to 2R8.

c. Conclusions

The operability evaluation considered the degraded condition, the design and construction of the motors, the probable cause of the cracked welds, the potential

failure modes, the specific safety function of the CFCUs, the inherent redundancy of needing only two of five coolers to meet the design basis, and the history of failures, including those identified at another facility. The operability evaluation provided adequate justification to support the operability determination.

E8 Miscellaneous Engineering Issues (92903)

E8.1 (Closed) IFI 50-275;323/92016-04: recirculation phase design basis. This item was opened in 1992 when an inspector believed that the licensee may have had an insufficient understanding of design basis requirements for the recirculation phase of emergency core cooling system operation. This item involved five individual items, three of which were subsequently closed. Due to an administrative error, this followup item was closed before actions for the two remaining items were reviewed. The inspector reviewed licensee documents and confirmed that the licensee evaluated and completed actions for the two remaining items. Since 1992, the inspectors note that the licensee has updated their design criteria memorandum for the operation of the emergency core cooling system. The inspectors also note that emergency core cooling system operation was reviewed and documented in NRC Inspection Reports 50-275;323/96023 and 50-275;323/97003. Accordingly, no additional action is required for this followup item.

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 General Comments

During this inspection period, the inspectors observed radiation protection controls. The inspectors noted that licensee personnel followed basic radiation practices such as proper wearing of dosimetry and protective clothing. All high radiation area doors were locked as required, and radiation protection postings were properly maintained.

S1 Conduct of Security and Safeguards Activities

S1.1 General Comments (71750)

During routine tours, the inspectors noted that the security officers were alert at their posts, security boundaries were being maintained properly, and screening processes at the Primary Access Point were performed well. During backshift inspections, the inspectors noted that the protected area was properly illuminated, especially in areas where temporary equipment was brought in.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on January 16, 1998. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. L. Becker, Assistant Manager, Maintenance
M. A. Crockett, Manager, Nuclear Quality Services
R. D. Gray, Director, Radiation Protection
T. L. Grebel, Director, Regulatory Services
D. T. Miklush, Manager, Engineering Services
J. P. Molden, Manager, Operations Services
D. R. Oatley, Manager, Maintenance Services
R. P. Powers, Vice President and Plant Manager
L. L. Womack, Vice President, Nuclear Technical Services

INSPECTION PROCEDURES (IP) USED

IP 37551	Onsite Engineering
IP 61726	Surveillance Observations
IP 62707	Maintenance Observation
IP 71707	Plant Operations
IP 71750	Plant Support Activities
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

ITEMS OPENED AND CLOSED

Opened

50-275;323/ 97023-01	URI	Questionable Technical Specification Interpretations (Section E1.2)

Closed

50-275/ 95-006-00	LER	Loads moved over spent fuel pool with inoperable ventilation systems (Section O8.2)
50-275/ 96-009-00	LER	Auxiliary feedwater pumps inoperable due to inadvertent blockage of a ventilation flow path (Section O8.3)
50-275/ 96-002-00	LER	Technical Specification 3.6.1.1 not met due to personnel error (Section M8.1)
50-275/ 96-004-00	LER	Technical Specification 3.3.3.5 not met due to personnel error (Section M8.2)
50-275/ 85-043-00	LER	Technical Specification 3.3.2 was not met due to an inadequate procedure (Section M8.3)
50-323/ 96009-01	VIO	Loads moved over spent fuel pool with inoperable ventilation systems (Section O8.2)
50-275/ 96019-02	VIO	Failure to report off clearance prior to removing ground buggies (Section O8.1)
50-275;323/ 92016-04	IFI	Recirculation phase design basis (Section E8.1)

Opened and Closed

50-275/ 97023-01	NCV	Inoperable auxiliary feed pumps due to blocked ventilation flow path (Section O8.3)
50-275/ 97023-02	NCV	Three examples of missed surveillance tests (Section M8)