ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-482/95-17

License: NPF-42

Licensee: Wolf Creek Nuclear Operating Corporation
P.O. Box 411
Burlington, Kansas

Facility Name: Wolf Creek Generating Station

Inspection At: Coffey County, Burlington, Kansas

Inspection Conducted: July 16 through August 26, 1995

Inspectors: J. F. Ringwald, Senior Resident Inspector
J. L. Dixon-Herrity, Resident Inspector
R. V. Azua, Inspector

Approved: D. F. Kirsch, Acting Chief, Project Branch B 9/11/95 Date

Inspection Summary

Areas Inspected: Routine, unannounced inspection including plant status, operational safety verification, maintenance observations, surveillance observations, onsite engineering, plant support activities, balance of plant inspection, followup-engineering, and onsite review of a licensee event report (LER).

Results:

Plant Operations

- Failures of both emergency diesel generators (EDGs) resulted in entering into a 2-hour shutdown limiting condition for operation and a Notice of Unusual Event (NUE). Licensee response to these failures was appropriate. Early recognition of the need for a license condition change would have avoided the need for a Notice of Enforcement Discretion (NOED). An incorrect interpretation of reporting requirements resulted in a decision to not report the failure to comply with License Condition 2.C(1) until prompted by the inspector (Section 2.1).

- The inspector identified two examples where temporary equipment was placed in essential service water (ESW) pump rooms in a manner that was not in accordance with administrative procedures. These specific examples were determined not to be safety significant (Section 2.2).

- Operations personnel responded appropriately and conservatively to high level in the EDG B lube oil sump (Section 2.3).

- Supervising operators (SO) developed an effective method of teaching six defined management expectations of operator conduct to their crews (Section 2.4).

- The inspector observed an operator perform a surveillance procedure step out of sequence. No safety significance resulted from the error. Corrective action by the shift supervisor (SS) was appropriate (Section 4.1).

Maintenance

- The inspector identified a weakness in quality control (QC) inspection planning. As a result, the QC inspector was required to determine, in the field, which inspection points to inspect (Section 3.3).

- The failure to adequately review a newly revised procedure used to test 13.8 and 4.16 kV breakers, prior to requiring its use in the field, caused confusion and unnecessary delays during maintenance on a safety-related breaker. The failure of the maintenance organization to identify the need for training on a new piece of special equipment, and to test that equipment prior to use, caused additional confusion (Section 3.6).

- Weak maintenance planning associated with the incorporation of vendor technical data into the work request (WR) resulted in workers using an excessive torque and breaking the connector screws on breaker terminals. This happened twice before additional guidance was sought. Workers and QC inspectors missed multiple opportunities to recognize that the selected torque was inappropriate for the type of connection being utilized. The failure of workers to document the screw damage in the WR did not meet the maintenance supervision's expectations (Section 3.5). The licensee identified that the pressurizer power operated relief valve (PORV) solenoid valve covers were torqued to an incorrect value during the last outage. This was identified as an example that demonstrated the need for QC to verify the acceptance criteria used during QC inspections and was characterized as a Non-cited Violation (Section 3.1). These are repeat examples of torquing problems and demonstrate the ineffectiveness of the licensee's previous corrective actions.

- The inspector noted that an electrician's confusion nearly resulted in setting the actuator rotor for a component cooling water valve

incorrectly. The QC inspector effectively questioned the electrician's decision and prevented the error. The electrician's confusion resulted from a lack of work instruction structure and excessive reliance on skill of the craft (Section 3.2). Weakness in the thoroughness of maintenance planning led to the work instruction inadequacy.

- Maintenance work on a Class 1E air conditioning (AC) unit was, generally, well performed. A continued need for attention to detail was noted when an open capillary tube on the Class 1E AC unit was not covered during the absence of the work crew. (Section 3.4).

Engineering

- Inspectors identified three examples of poor communication between system engineers and operations personnel that resulted in the failure of operators to receive information needed to monitor and operate the plant (Section 5.2).

- The inspector identified a deviation resulting from an excessive gap between a safety-related battery and the battery's seismically qualified mounting rack (Section 5.1).

- System engineering's use of an additional meter to verify the adequacy of a piece of new test equipment during safety-related breaker testing was identified to have been completed outside of procedural controls and found to be a failure to follow procedure. The activity resulted in extending a limiting condition of operation outage by approximately 45 minutes (Section 3.6).

- In response to workers using an incorrect torque value, which broke a screw on a breaker terminal, system engineers appropriately determined that the generic implications did not impact operability of similar breakers (Section 3.5).

Plant Support

- The inspector identified concerns in the technical support center (TSC) associated with status boards and the storage of emergency drinking water during the licensee's emergency planning (EP) drill on August 1, 1995. These were corrected prior to the EP exercise on August 15, 1995 (Section 6.2).

- The inspector noted a worker who did not understand the expectations for wearing the new electronic dosimetry, resulting in the worker wearing the dosimetry in the wrong location. Health physics (HP) initiated appropriate corrective actions. The same individual also wore a thermoluminescent dosimetry (TLD) with an improperly oriented beta window. Corrective actions for these situations were effective (Section 6.4).

Summary of Inspection Findings:

- A noncited violation was identified (Section 3.1).
- Deviation 482/9517-01 was opened (Section 5.1).
- Unresolved Item 482/9505-02 was closed (Section 8).
- Followup Item 482/9419-02 was closed (Section 8).
- LER 482/95-002 was closed (Section 9).

Attachments:

- Persons Contacted and Exit Meeting
- Acronyms

DETAILS

1 PLANT STATUS (71707)

The plant operated at 100 percent power throughout the inspection period.

2 OPERATIONAL SAFETY VERIFICATION (71707, 93702)

The inspectors performed this inspection to ensure that the licensee operated the facility safely and in conformance with license and regulatory requirements. The methods used to perform this inspection included direct observation of activities and equipment, observation of control room operations, tours of the facility, interviews and discussions with licensee personnel, independent verification of safety system status and Technical Specifications (TS) limiting conditions for operation, verification of corrective actions, and review of facility records.

2.1 Inoperability of Both EDGs

Both EDGs failed during separate tests resulting in entry into TS Action Statement 3.8.1.1.f and the declaration of an NUE.

2.1.1 Failure of EDG A

On July 27, 1995, at 2:15 a.m., the keep warm pump for EDG A failed, resulting in the EDG lube oil temperature falling below 120°F. Operators declared the EDG inoperable and entered TS Action Statement 3.8.1.1.b. While lube oil temperature limits were not identified in the TS, operators concluded that the degraded lube oil temperature could have the potential to affect the EDG's ability to meet the start-time limits of TS 4.8.1.1.2.g. License Condition 2.C(1) required the keep warm pump to satisfy the requirements of ASME Section III, Class 3. Repair of EDG A could not be completed within the 72 hours required by TS 3.8.1.1.b. because the licensee did not have a pump that met these requirements and could not procure one from any source. Licensee personnel had been pursuing the acquisition of a qualified pump from other sources prior to the failure, but the projected delivery dates were in 1996.

2.1.2 Failure of EDG B

On July 27, 1995, in response to the failure of EDG A, operators started EDG B as required by TS Action Statement 3.8.1.1.b. As the EDG was coasting down following a successful run, it tripped on overspeed. The SS declared EDG B inoperable at 9:35 p.m. and entered TS 3.8.1.1.f. At 10:11 p.m., the SS declared an NUE as a result of loss of both EDGs for greater than 15 minutes as required by the emergency plan. On July 28, 1995, at 1:03 a.m., operators started EDG A and synchronized it to the grid in order to load it to heat up the lube oil. After the lube oil increased above 120°F, operators unloaded and shut down EDG A. After verifying that EDG A shut down as expected,

indicating the EDG A did not have a common mode failure mechanism due to mechanical overspeed, operators declared EDG A operable at 2:18 a.m. and terminated the NUE. Operators started EDG A and synchronized it to the grid, as required, to maintain the lube oil temperature above 120°F. During each start, operators loaded and ran the EDG per the vendor's guidelines to mitigate carbon buildup inside the cylinders.

2.1.3 NOED

At 11:00 a.m. on July 27, 1995, licensee management held a conference call with NRC management representatives in Region IV and the Office of Nuclear Reactor Regulation (NRR). During this call, licensee management requested an NOED for License Condition 2.C(1). NRC management granted the NOED permitting the licensee to install a keep warm pump designed to the same performance requirements as the unavailable ASME Section III, Class 3 Pump. Coincident with the NOED request, the licensee also submitted an exigent license amendment request to delete License Condition 2.C(1). NRR issued License Amendment No. 88 on August 3, 1995, deleting License Condition 2.C(1). During this meeting, concerns were raised by NRR regarding the operability of EDG A while it was synchronized to the grid. The licensee conducted a subsequent conference call on August 3, 1995, with personnel from Region IV and NRR. The licensee answered the questions raised by NRC personnel and the inspector concluded that it was appropriate for the licensee to consider EDG A operable when it was synchronized to the grid. The NRC has determined that EDG A was not inoperable. Accordingly, enforcement action pursuant to this issue was not warranted.

2.1.4 Restoration

Maintenance personnel replaced portions of the governor on EDG B and declared EDG B operable at 7:26 p.m. on July 30, 1995. Maintenance personnel replaced the keep warm pump on EDG A on July 31, 1995 and declared EDG A operable at 4:26 p.m. At least one EDG was operable at all times during the resolution of these problems.

2.1.5 Reportability

On August 9, 1995, the licensee provided the NRC with an interpretation of the need to report the failure to comply with License Condition 2.C(1) following issuance of the NOED under License Condition 2.F. The interpretation essentially concluded that the failure to comply did not need to be reported because the NRC issued the NOED and License Amendment No. 88. The inspector discussed this interpretation with NRC representatives from NRR and Region IV management and concluded that this interpretation was not appropriate. The inspector discussed this conclusion with the supervisor of licensing. The supervisor of licensing subsequently determined that the earlier interpretation was incorrect and initiated actions to report the failure to comply as required by License Condition 2.F. The supervisor of regulatory compliance initiated Performance Improvement Request (PIR) 95-2001 to address this issue. The failure to report this situation to the NRC Operations Center

was not cited because there was no safety significance to the failure to report and the NRC clearly knew about the situation through the request for the NOED.

2.1.6 Conclusions

The inspector concluded that the licensee responded appropriately to the failure of both EDGs. However, the need for an NOED and exigent license condition change could have been avoided if the licensee had recognized the need for a license condition change concurrent with the recognition of the difficulties in procuring a spare ASME Section III, Class 3 Pump. This was considered to be a weakness in communication between the engineering and operations organizations.

2.2 Improperly Secured Temporary Equipment

On July 18, 1995, the inspector observed a drain hose tied to a safety-related cable tray support in the ESW Train B pump house and an unrestrained oxygen monitor in the ESW Train A pump house. The inspector questioned whether the hose had been previously evaluated, and whether either condition was permitted by plant procedures. The SS immediately dispatched an operator to tie-off the unsecured oxygen monitor and remove the drain hose. The licensee initiated PIR 95-1810 to address the drain hose. Further investigation revealed that the method of securing the hose was an unanalyzed condition and that temporary hose installation was no longer specifically addressed by existing procedures. Subsequent evaluation determined that the loading applied to the cable tray support was insignificant. Procedure AP 21J-001, "Control of Temporary Equipment," Revision 0, Step 6.1, stated that, "No temporary equipment is to be secured or laid across safety-related, special scope or Class 1E components (Separation Groups 1-4) without a prior safety evaluation." Step 6.7 required mobile equipment to be immobilized. The licensee issued PIR 95-2147 to address the unrestrained oxygen monitor. While these appeared to be examples of failures of licensee personnel to follow Procedure AP 21J-001, the inspector concluded that the safety significance was negligible and that the licensee's immediate corrective actions were prompt and sufficient. Accordingly, no enforcement action was warranted and this situation was not cited.

The licensee's investigation identified that similar situations involving the control of temporary equipment have occurred 15 times during the last 2 years. The licensee also initiated PIR 95-2158 to address the ineffective corrective action taken in response to these situations. This PIR was categorized as significant by the licensee.

The inspector determined that licensee's response to these issues was appropriate.

2.3 EDG Inoperability Caused by Low Lube Oil Level

On August 3, 1995, operators performed the scheduled surveillance test on EDG B. During this test, operators received a high level alarm in the lube oil crankcase. After discussions with the system engineer, the SS declared EDG B inoperable at 9:32 a.m. Operators isolated the auto makeup line from the auxiliary lube oil tank. Maintenance personnel removed approximately 100 gallons from the EDG B crankcase to restore the level to the normal range. Chemistry analyzed oil samples and confirmed that no water was present and the oil was not contaminated by impurities. After considerable discussion, the licensee initiated PIR 95-1962 and Reportability Evaluation Request 95-026 to address the concern of whether the licensee met the USAR commitment in Safety Design Basis Seven in Section 9.5.7.1.1. This commitment required the licensee to be able to operate the EDG at the continuous nameplate rating for at least 7 days without replenishing the system. With a design maximum oil consumption rate of 60 gallons per day, the system engineer determined that EDG B would have had to be operated with the auxiliary lube oil tank full and the engine sump above the high alarm setpoint to meet this commitment. Operations and engineering personnel concluded that the cause of the high level in EDG B was the cumulative effect of repeated automatic makeup actuations during the repeated starts of the engine while adjusting the governor following the maintenance discussed in paragraph 2.1. Operators restored levels in the auxiliary lube oil tanks for both EDGs to 75-80 percent, verified that sump levels in the engines were in the normal range, unisolated the automatic makeup line from the auxiliary lube oil tank on EDG B, verified that adequate quantities were onsite to provide a source of makeup for greater than 7 days, operated both engines per the surveillance test procedures, and declared EDG B operable at 5:54 a.m. on August 4, 1995. Through subsequent discussions with the Callaway EDG system engineer and the vendor, the licensee determined that the EDGs would be operable with as little as 300 gallons of oil in the crankcase sump.

At 11:25 a.m. on August 4, 1995, the turbine building watch noted that the level had increased in the EDG B sump. Operations concluded that the auxiliary lube oil system automatic makeup valve was leaking by, and was the source of the elevated levels in the sump. The licensee has scheduled repair of the makeup valve and operators are monitoring level daily. The inspector concluded that operators actions during this event were conservative and appropriate.

2.4 Operations Shift Turnover Brief

The inspector observed shift turnover briefs by the oncoming SO throughout the report period. As discussed in previous inspection reports, these briefings continued to be thorough. During the shift turnover briefs since May 1995, the inspector observed the SO periodically ask members of the oncoming crew to name the six divisional standards established by operations management. The six standards were the use of STAR (stop, think, act, and review), housekeeping, safety, attention to detail, questioning attitude, and communications. During this inspection period, some SOs increased the

effectiveness of this quiz by asking operators to describe the divisional standards and provide examples of how that particular divisional standard could be used during the upcoming shift. During one particular brief, the SO provided recent examples where the use of these divisional standards resulted in increased operator effectiveness. The inspector concluded that this represented effective establishment and communication of management expectations and the evolution of an effective method of encouraging operators to personalize the expectations.

3 MAINTENANCE OBSERVATIONS (62703)

During this inspection period, the inspectors observed and reviewed selected maintenance activities to verify that personnel complied with regulatory requirements including: (1) receiving permission to start; (2) requiring QC department involvement; (3) proper use of safety tags; (4) proper equipment alignment; (5) use of jumpers, appropriate radiation worker practices; (6) use of calibrated tools and test equipment; (7) documenting the work performed; and (8) proper postmaintenance testing. Specifically, the inspectors witnessed portions of the following WRs:

- WR 02530-95-1 Piping Line EF115HBC-4 Freeze Seal
- WR 01620-95-1 AC Unit SGK05B Spool Removal
- WR 01620-95-2 Valve EFV0081 Reinstallation
- WR 01620-95-3 AC Unit SGK05B Spool Removal Installation
- WR 02122-94 Rerouting of AC Unit SGK05B Capillary Tubing
- WR 50154-95-1 AC Unit SGK05B Disassembly and Cleaning
- WR 01481-95 Repacking of Valve GK0768
- PM 102225-001 Containment Spray Pump A Breaker NB00102 Inspection and Testing
- WR 50626-95 Preventive Maintenance on Emergency Light A38
- WR 02405-95 Valve EG HV0074 Packing Adjustment and Votes Operation Testing Evaluation System Test

Selected observations from the activities witnessed are discussed below.

3.1 Pressurizer PORV Solenoid Valve Cover Torque

During a WR review on July 28, 1995, the licensee noted the solenoid valve covers on the pressurizer PORVs had not been torqued correctly on October 10, 1994. The work instruction required that the covers be torqued to 8 ft-lbs.

However, the torque value identified in the technical manual was 30 ft-lbs. The licensee appropriately declared the PORVs inoperable, entered the 1-hour TS limiting condition for operation, and torqued the valve covers to the correct value. The licensee completed Reportability Evaluation Request 95-23 and determined that the solenoid met the intent of the environmentally qualified design and that the operability of the valves had not been affected. The licensee's evaluation further noted that the torque had been specified as a result of an unrequired supplemental test using an assumed containment pressure 36 psig greater than the peak containment pressure of the Wolf Creek design. The licensee wrote PIR 95-1924 to address further corrective actions, recognizing that additional examples of torqueing problems had recently been identified. The inspector determined that the PIR and the corrective actions addressed as a result of torquing concerns documented in NRC Inspection Report 50-482/95-13 should prevent recurrence. The inspector concluded that the failure to identify the correct torque in the work instruction was a violation of 10 CFR 50, Appendix B, Criterion V. This failure constitutes a violation of minor significance and is being treated as a noncited violation, consistent with Section VII of the NRC Enforcement Policy.

The inspector reviewed the WRs used to perform the original torque procedure and noted that QC had monitored the task. In NRC Inspection Report 50-482/95-13, the inspector raised the concern that QC was not required to verify the acceptance criteria for the tasks they were monitoring. The inspector was concerned that the failure to independently verify the acceptance criteria in this case may have allowed safety-related environmentally qualified equipment to be returned to service in an unanalyzed condition.

The inspector discussed this concern with the performance assessment manager. The manager agreed that the example verified the need to independently verify the acceptance criteria for QC inspection points on a sampling basis and described the actions that were being taken to address the concerns. The first surveillance of work packages was scheduled to be completed in August 1995. The review was to consist of an evaluation of inspection planning, technical adequacy, and quality program compliance. The inspector concluded that the actions taken by the licensee in response to the concerns were appropriate.

3.2 Valve Actuator Adjustment Confusion

On August 8, 1995, the inspector observed a mechanic tighten the packing and electricians evaluate and adjust a limit switch settings for Valve EG HV0074, component cooling water from the postaccident sampling system sample cooler. While determining the proper number of handwheel turns for actuation of each of the limit switches, the electricians used a calculator and marked notes on a field copy of Drawing E-025-00007(Q) indicating the number of turns for each rotor. The electricians appeared to be confused, and annotated two or three different values for each rotor-handwheel position. At one point, the QC inspector commented that the QC calculated value differed from the electricians' calculated value. The electricians determined that one of the

rotors did not actuate at the correct number of handwheel turns and that it had to be adjusted. The QC inspector questioned this decision and indicated that the electrician had moved the handwheel from the full closed direction rather than the full open direction. This QC interaction prevented the electricians from improperly setting one rotor. The inspector discussed the error with the electrician. The electrician stated that the work instruction required that the Limitorque actuator rotor setting be checked using a procedure designed to set, but not check rotor settings. The inspector concluded that the planning for this job was weak because it did not provide a structured approach to evaluate the rotor settings and relied excessively on the skill of the craft. The inspector found that the electricians were proceeding in the face of uncertainty, but the QC inspector effectively conducted the QC inspection and prevented the electricians from setting the rotor incorrectly.

3.3 QC Inspection Planning

On August 9, 1995, the inspector observed a QC inspector perform inspections required by WR 02122-94. The QC inspector explained that the inspections associated with this work were generic QC inspection attributes used for all Swagelok fitting installations and that several of these inspection attributes were not applicable to this particular work activity. Upon discovering this, the QC inspector appropriately contacted the QC Level III lead inspector. The Level III lead inspector instructed the QC inspector to perform the inspection attributes that were applicable and to mark the remaining attributes as not-applicable. The NRC inspector expressed concern that this guidance required the QC inspector in the field to determine what inspections had to be performed.

In reviewing the planning for this inspection, the QC supervisor noted that the inspection selected had been generic. This meant that the inspection planner had not reviewed the drawings and plant modification request package associated with this work prior to establishing the inspection requirements. The inspector concluded that this represented weak inspection planning. The QC supervisor stated that corrective actions planned to address this weakness would be unusual because of the change to the QC inspection planning process associated with the implementation of the electronic work control system. Since the maintenance planners would be performing inspection planning based on a standard QC inspection document, future QC inspections will not be planned by QC personnel. The corrective actions include providing direction to all QC personnel to review the QC inspection points in detail to ensure that they are applicable to the work being performed, emphasizing that the program permits QC inspectors to use alternate inspection techniques when appropriate, and requiring QC to sample work instructions to determine if the appropriate QC inspection requirements have been utilized. This activity was to include a sample of work packages with no identified QC inspections to ensure that no QC inspection requirements were omitted. The inspector concluded that these corrective actions addressed the identified concern but noted that under the revised process, the need for a careful review of the inspection plan by QC prior to going into the field becomes more significant.

3.4 Class 1E AC Unit SGK05B Maintenance Outage

The inspectors observed portions of the numerous tasks during the Class 1E AC Unit SGK05B maintenance outage on August 9-10, 1995. The inspectors noted that the work was well performed and that much effort had gone into preparing for the outage. The coordination of work in the small area was impressive. The inspectors noted good confined space controls, and that an appropriate amount of attention had been given to safety and fire protection. The actions taken in response to the degraded cooling capability while the unit was out of service were found to be conservative and appropriate. The inspectors noted that attention was given to foreign material exclusion concerns, but did identify one capillary tube opening under the compressor that had not been covered when the crew left the area. The inspectors concluded that continuous attention to detail was needed regarding foreign material exclusion concerns.

3.5 Overtorquing Breaker Terminal Screws

On August 9, 1995, during the replacement of Train B safety-related switchgear room chiller Breaker NG02ABF4, workers broke the screw in a keeper nut while attempting to apply a torque of 50 in-lbs. Workers stopped work, contacted their supervision, obtained a revision to the work instructions to change the type of connector, and completed the work properly. PIRs 95-1594 and 95-2008 were initiated as a result of the problem.

Workers did not, however, document that the screw broke in the WR. Procedure ADM 01-057, "Work Request," Revision 30, required workers in Step 7.25 to document any useful information that would help determine the current status of the work for daily or shift turnover, work group transfer, and completion review. In addition, Step 7.30 required workers to enter any comments, remarks, or supplemental information. During discussions with the electrical maintenance supervisor, the supervisor stated that workers were expected to document work problems in the work package. During discussions with QC and electrical maintenance personnel, the inspector noted that the failure of workers to document the damage in the WR made event followup difficult. The inspector concluded that although the PIRs documented the event, the failure of workers to document encountered problems hampered event followup.

The work instructions for this installation called for workers to crimp a ring lug on to the wire, then screw the ring lug on to the keeper nut and breaker terminal. The torque for the screw was chosen from a table used to torque compression lugs. Since the torque value was dependent upon wire size, workers selected the appropriate torque for the wire size, but failed to recognize that it was not appropriate for these circumstances since this torque did not compress the wire. In addition, the QC inspector failed to question the appropriateness of this torque value despite a related occurrence on June 22, 1995, as described in NRC Inspection Report 50-482/95-13, paragraph 3.4. Following the June 1995 event, a Level III QC inspector conducted a shop discussion to emphasize the need for QC inspectors to verify the appropriateness of the torque values whenever they were to be selected in

the field. The inspector concluded that the workers and the QC inspectors missed numerous opportunities to recognize that the selected torque was not applicable to the circumstances and noted that t'e previous corrective actions had not been fully effective.

Through discussions with the system engineer, the inspector determined that the vendor supplied keeper nuts for use on breakers designed for loads less than 30 amperes and compression lugs for loads greater than 30 amperes. The system engineer explained that the vendor supplied a technical manual that provided torque specifications for the compression lugs, but not for the keeper nuts. The work package provided a table of torque values appropriate for compression lugs, but did not address the keeper nuts. The inspector concluded that this represented a weakness in the work planning process. The safety significance of the event was minor because the damage was self-revealing, workers took appropriate actions, and appropriate measures were taken to correct the problem prior to restoring the breaker to service.

The inspector discussed the generic implications of the event with the system engineer. The system engineer determined that 17 breakers had been installed using the incorrect keeper nut torque. The vendor stated that the keeper nuts would not be damaged by installation using a torque of 50 in-lbs. Since the screw failed in this case, but not in the 17 installed breakers, the system engineer concluded that there was no operability concern with the breakers. During these discussions, the inspector determined that seismic forces had been considered in this determination. The inspector concluded that the breakers were operable and that the engineering staff provided an appropriate review of the generic implications.

3.6 Preventive Maintenance on Containment Spray Pump Breaker NB00102

On August 16, 1995, the inspector observed preventive maintenance being done on Containment Spray Pump A Breaker NB00102. System engineering personnel assisted the maintenance technicians during the part of the procedure that measured the breaker response times. In addition to aiding in setting up the timer for the test, they attached an oscillographic recorder in parallel to allow them to verify the accuracy of the new timer the maintenance group was using. This task was done in a trial and error method. The recorder did not work during the first test and additional assistance was needed to correctly set up the equipment. The inspector noted that neither the work package nor Procedure MPE E009Q-02, "Inspection On Testing of 13.8 kV and 4.16 kV Circuit Breakers," Revision 23, allowed this additional activity nor addressed the recorder that was used. None of the individuals involved knew how to set up the new timer. The procedure did not provide enough guidance to allow them to set up the timer. The entire task preceded at a slow pace and the technicians found a number of errors and confusing guidance in the newly revised procedure. They appropriately contacted the maintenance engineer and consulted the technical manual when they encountered confusion. Workers recorded all discrepancies so that they could be resolved.

The inspector discussed the activity with the personnel involved and identified several concerns. No training had been provided on the use of the new timer. The system engineer's data collection had not been controlled by a procedure. Procedure MPE E009Q-02 had recently been revised and had not been field tested. The inspector discussed these concerns with the system engineer for the system. The engineer indicated that taking the readings did not affect the breaker and the breaker was out of service, so it was acceptable to take the readings. The inspector concluded that, in this case, the safety-related equipment had not been harmed but questioned the acceptability of system engineering performing uncontrolled work on safety-related equipment. The experimenting to find the correct lineup to take the data with the meters in parallel had taken approximately 45 minutes longer than it normally took to take the data. With planning, the meter could have been tested on a spare breaker (and personnel trained in how to use it) without risking extending a limiting condition for operation time on a safety-related piece of equipment. Neither system engineering nor electrical maintenance had considered this option. The safety impact of having the breaker out of service for 45 minutes longer than necessary was insignificant; however, the NRC remains concerned regarding the impact of cumulative out-of-service times of safety systems on the total plant risk.

The inspector discussed the activity with the supervisor of the central work authority. The supervisor indicated that the central work authority group had not been aware that the work was occurring and requested that system engineering write a PIR to document the concern. The inspector reviewed PIR 95-2059 and determined that it adequately stated the concern. The inspector discussed the generic concern of system engineering being allowed to work on out-of-service safety-related equipment outside of controlled procedures with the systems engineering manager. The manager stated that the activity that occurred was acceptable because taking the readings could not have affected the breaker, but recognized the generic concern that there had been no procedural control over the activity. The potential corrective actions discussed included adding guidance in the work control procedure. Although the activity had low safety significance, the NRC expressed concern regarding the system engineer's apparent willingness to validate a piece of test equipment on a safety equipment that was to be reinstalled in the plant. The inspector concluded that taking the data outside of the procedure controls was a failure to follow procedures and that the licensee's corrective actions should address the concern.

The inspector discussed the lack of training and procedure inadequacies with the superintendent of electrical maintenance. The superintendent stated that PIR 95-2157 was initiated to address the failure to identify the need for training, and that training was scheduled for that week. A recent self-assessment in the area of electrical maintenance procedures had identified similar procedure inadequacies. The inspector concluded that the corrective actions taken and those identified as a result of the self-assessment would appropriately address the inspector's concerns.

4 SURVEILLANCE OBSERVATIONS (61726)

The inspectors sampled selected surveillance tests required by TS to verify that personnel performed the tests in accordance with TS, used technically adequate procedures and appropriate test equipment, and properly dispositioned any tests results which failed to meet the acceptance criteria. Specifically, the inspectors witnessed the following surveillance tests:

- STS AB-002 Main Steam Isolation Valve Accumulator Discharge
- STS AL-103 Turbine-driven Auxiliary Feedwater Pump Inservice Pump Test
- STS EG-100B Component Cooling Water System Pumps B/D Inservice Pump Test
- STS EJ-100B Residual Heat Removal System Inservice Pump B Test
- STS KJ-005A Manual/Auto Start, Synchronization and Loading of Emergency D/G NE01

The inspectors concluded that the surveillance tests were performed as required.

4.1 Surveillance Procedure Error

During the performance of Surveillance Procedure STS AB-002, "Main Steam Iso [Isolation] Vlv [Valve] Acc [Accumulator] Discharge," Revision 0, on August 8, 1995, the inspector observed the operator complete and sign Step 8.3.12.2 prior to the completion of Step 8.3.12.1. While there was no safety significance associated with the operator's error, it was not permitted by the licensee's procedures. When questioned, the operator explained that completing the two steps out of order had no effect on the test. The inspector discussed this occurrence with the SS. The SS determined that the action was inappropriate and the operator involved was counselled. The inspector concluded that the SS's actions were appropriate.

4.2 Surveillance Test Procedure STS KJ-005A

On August 23, 1995, the inspector monitored portions of the surveillance test run of EDG A, both locally and in the control room. Based on the responses to the inspector's questions, it was determined that the control room operator and the nuclear station operator (NSO) had excellent knowledge of their responsibilities. Good communication was noted within the control room and between the control room and the personnel in the field. Throughout this activity, procedural compliance was noted. The latest revision of the procedure was used. The inspector verified that this surveillance satisfied the requirements of the TS and was performed within the appropriate period.

During the performance of this surveillance test, the inspector noted that the control room operator performing the surveillance test was reviewing the next revision to the surveillance test procedure (Revision 24). The inspector noted that the surveillance was performed in accordance with the correct revision (Revision 23) and that the two procedures were on different color paper to prevent confusion. Review of the differences between the two documents verified that the changes were minor. The inspector discussed the practice with the operations manager and expressed concern that this could distract the operator or cause confusion. The manager indicated that this was not a normal practice. In this case, the manager was aware of the concurrent review and that the control room operator had reviewed both procedures before the test with the procedure writer to ensure he was aware of the differences. The inspector concluded that the test was conducted in a satisfactory manner and that the concurrent procedure review had not hampered its performance.

5 ONSITE ENGINEERING (37551)

The inspectors reviewed and evaluated engineering performance as discussed below.

5.1 Excessive Seismic Gap in Safety-Related Battery Rack

On July 18, 1995, the inspector observed a 1/2 inch gap between the end cell and the unistrut support of the north rack of the NK13 Battery. The inspector immediately informed the SS who initiated Reportability Evaluation Request 95-19. The SS also initiated WR 03048-95 with a high priority.

USAR Section 3.10(N) states that safety-related batteries and racks were seismically qualified using Regulatory Guide 1.100 and IEEE 344-1975. The licensee procured these batteries under Specification E-050, which required the vendor to provide a vendor technical manual with the battery. The vendor supplied Vendor Technical Manual E-050-00016 with the NK13 battery. This manual contained a document entitled "Stationary Battery Racks Seismic Installation Instructions," which required the battery end gap to be 1/4 inch or less. The batteries were not declared inoperable based on the engineering judgement of the system engineer. The inspector reviewed the engineer's determination and concluded that the judgement was appropriate. Electricians immediately restored the gap to 1/4 inch or less.

This failure to maintain this gap at 1/4 inch or less is a deviation of USAR commitments (482/9517-01). This gap did not appear to result in an operability issue.

5.2 Ineffective System Engineer Communication with Operations

The inspectors identified three examples where ineffective communication between the system engineer and operations resulted in inadequate transfer of information needed for plant operation and monitoring.

5.2.1 Containment Cooling Temperature Alarm

On July 27, 1995, the inspector questioned operators regarding the Plant Computer Alarm GNT0050, "Reactor Vessel Support Cool Air Return High Temperature Alarm." The computer displayed a temperature of 149.76°F. The operators recalled seeing some document that stated that this temperature was not a problem and that a design change was in process to raise the alarm setpoint for that alarm point. After a few minutes, operators retrieved Operations Information Report (OIR) 95GN01, "Computer Point Alarms on the Cavity Cooling System," Revision 0, dated June 21, 1995. The OIR stated that "The max temperatures that the system sees have been reviewed and are fine." The OIR did not state what temperatures the engineer evaluated, nor did it provide an upper value above which system operability would be in question. When the inspector questioned the system engineer, the system engineer stated that the original OIR was satisfactory because operations notified engineering when the alarm came in and that engineering had the lead to address the plant modification to raise the alarm setpoint. After additional discussions with the system engineer, system engineering supervision, and operations supervision, the system engineer revised OIR 95GN01 to provide current temperatures that engineering determined would not cause heat concerns, maximum expected temperatures based on the TS limit on lake temperature, and maximum temperatures for these three points above which operations should contact system engineering for further evaluation. The inspector concluded that the original revision of the OIR failed to provide adequate information for operations to properly monitor cavity temperatures and that operations failed to recognize the inadequacy of the information. The operations manager subsequently stated that this topic would be added to the agenda for the next SS/SO meeting. Additionally, the system engineering manager stated that the OIR program would be reviewed to determine the appropriate level of review necessary prior to issuance of an OIR. The inspector concluded that these corrective actions addressed the issue.

5.2.2 EDG Crankcase Level Concern

On August 2, 1995, in preparation for the surveillance discussed in paragraph 2.3, operators noted that EDG B crankcase oil level was approximately 2 inches above the top mark on the dip stick. As a result of inadequate communication between the system engineer and operations, the system engineer understood that the level was 1 inch above the top mark on the dip stick, and stated that this level did not present an operability concern. With this guidance, operators started EDG B on August 3, 1995, and subsequently, shut it down and declared it inoperable when the crankcase high level alarm annunciated. The inspector concluded that the ineffective communication between the system engineer and operations resulted in the EDG being started with a crankcase oil level nearly high enough to cause the crankshaft to impact the surface of the oil. The system engineer's supervisor stated that the system engineer was counselled. The operations manager stated that this topic would be added to the agenda for the next SS/SO meeting.

5.2.3 EDG Starting Air Compressor Oil Level

On August 3, 1995, while accompanying the NSO on a tour of the diesel rooms, the inspector noted that the oil in the EDG starting Air Compressor D crankcase overflowed when the NSO checked the level. The NSO explained that it had happened before, that there was probably water in the oil, and that an action request had to be written to change the oil. The NSO knew that the moisture accumulated due to condensation, but did not know what corrective actions were being taken in response to the problem.

Operations management referred the question of why this moisture accumulation occurred in all of the compressors to system engineering on August 7, 1995, during the SS's morning meeting. The inspector researched the WR history and noted that high oil level and a concern of water in the oil had been noted about once a year for each compressor since startup. Through discussions with the shift engineer, the inspector determined that system engineering had responded to the questions and explained that the water in the oil was due to condensation from the humidity in the air. The shift engineer was not aware of any corrective action was being taken to resolve the problem.

The inspector discussed the concerns with system engineering. They explained that moisture condensation was a manufacturer identified problem and that the corrective action was to use a synthetic compressor lubricant. The licensee started using the manufacturer suggested lubricant approximately 8 years ago. The inspector questioned why operations personnel were not aware of this corrective action and whether a preventive maintenance task had been considered to change the oil before it overflowed the crank case. The system engineering supervisor stated that an OIR was being written to explain the corrective actions and that the preventive maintenance schedule would be reviewed to determine if enhancements were necessary. The inspector concluded that the corrective actions taken to address the condensation build up in the compressor crank case were adequate.

5.2.4 Conclusions

The inspectors concluded that in each of these cases, communication between the system engineers and operators resulted in the failure of operators to receive information needed to monitor and operate the plant.

6 PLANT SUPPORT ACTIVITIES (71750)

The inspectors sampled selected activities in the different areas of plant support and verified that they were implemented in conformance with licensee procedures and regulatory requirements.

6.1 EP Drill

On August 1, 1995, the licensee conducted the second of two drills in preparation for the EP exercise on August 15, 1995. The inspectors

participated in this drill. Several TSC status board concerns were noted during the drill.

- The priority status board did not rank the priority of the various activities listed.

- The dose assessment coordinator was unsure as to whether the release was monitored or unmonitored and, therefore, did not mark any of the blocks characterizing the release.

- At 1:52 p.m., the onsite team status board listed the estimated completion time for the postaccident sampling system team as 10:30 a.m., over 3 hours earlier.

The inspector concluded that these status board errors could lead to confusion.

The inspector also noted that emergency drinking water for the TSC was located in the TSC diesel generator room, inside the contaminated area based on the onsite release. The inspector concluded that an onsite release could contaminate the outside of these plastic bottles of water, making it very difficult to use this water, if needed.

The inspector expressed these concerns to emergency preparedness personnel, and noted that they had been addressed appropriately during the exercise on August 15, 1995. The inspector concluded that the corrective actions were effective.

6.2 EP Exercise

An EP exercise with local, state, and federal participation was held on August 15-16, 1995. The results of the inspection of this activity will be documented in NRC Inspection Report 50-482/95-12.

6.3 Improperly Worn Dosimetry

While observing work on a component cooling water valve, the inspector noted that one of the workers wore the new PD-1 electronic dosimeter clipped to the worker's belt rather than to the lanyard with the worker's TLD. The inspector also noted that the worker's TLD had been clipped to the lanyard with the beta window against the worker's chest rather than facing outward. When the inspector questioned the worker regarding the proper use of the PD-1, the worker stated that the only requirement was for the PD-1 to be in close proximity to the TLD. The worker considered the TLD and PD-1 to be in close proximity as worn. At the computer terminals where workers logged into the restricted area, HP posted a sign stating, "NOTE Please wear the electronic dosimeters in close proximity to the TLD in the chest area. Thanks HP." The inspector concluded that the expectations were not clearly communicated and the worker did not understand the expectation for wearing the new PD-1

dosimetry. The inspector discussed the improperly worn dosimetry with the HP operations supervisor. HP initiated PIR 95-1995 to address the proper wearing of the PD-1.

The inspector reviewed the PIR and questioned the HP superintendent regarding why PIR 95-1995 only addressed the improper location of the PD-1 and not the misorientation of the beta window. The HP superintendent stated that beta dose was very low and, therefore, the misoriented TLD was not considered to be significant. The inspector expressed the concern that if HP's standards for dosimetry wear were relaxed in this area, additional measures would be needed in the future during work with significant beta exposure. PIR 95-2152 was initiated to address the concern. The inspector concluded that the corrective actions were appropriate to address the concerns.

6.4 Storage of Unsearched Boxes in the Fuel Building

On August 21, 1995, the licensee received a shipment of fuel handling equipment from Westinghouse. Due to the unavailability of HP and security personnel and recognizing that the boxes contained contaminated equipment which had been packaged by the manufacturer, the boxes were not searched upon receipt. Personnel moved the boxes to the 2047 foot elevation of the fuel building and security took the card readers offline thereby locking the entrances. HP and security personnel searched the boxes the next morning and security restored normal access to the fuel building.

The inspector questioned whether it was appropriate for the unsearched material to be stored on the 2047 foot elevation of the fuel building. After discussing the impact of security locking the building with the operations superintendent, the inspector determined that since NSOs carry vital area keys with them, their access to the fuel building was not restricted. The inspector asked if NSOs would delay entry into the fuel building in order to notify security in an emergency. The superintendent stated that it depended upon the nature of the emergency and that NSOs would not hesitate to enter prior to notifying security if the situation so required. The inspector concluded that security actions did not impede operator access to the fuel building.

Region IV safeguards inspectors requested a conference call with licensee security personnel. During this conference call on August 25, 1995, the safeguards inspectors concluded that the licensee actions were appropriate.

6.5 Use of Area Radiation Monitors

NRC Inspection Report 50-482/95-09, paragraph 1.1.2, described difficulties the SS and shift engineer had in determining whether area radiation monitors increased by a factor of 1000. In response to these concerns, operations personnel developed a computer display with side-by-side columns displaying the actual area radiation monitor readings and a 6-month average of the associated area radiation monitor's background reading. The inspector

considered this to be very effective in assisting licensee personnel in evaluating this aspect of the emergency action level tree.

The inspector subsequently questioned whether the 6-month average values would be updated periodically. Operations personnel initially stated that these values would never be reviewed and updated. Following subsequent discussions, the supervisor of EP stated that these average values would be reviewed and updated during the biannual relevancy review of Procedure EPP 01-2.1, "Emergency Classification." The inspector concluded that the corrective action appeared to be appropriate.

7 BALANCE OF PLANT INSPECTION (71500)

The inspector selected four systems to review during this inspection: heater drain, nonsafety 13.8 and 4.16 kV electrical, compressed air, and condenser air removal. The inspector interviewed systems engineers and operations personnel, toured the plant with operations personnel, performed system walkdowns, reviewed trip history and performed a partial review of maintenance history. Through these reviews, the inspector concluded that there are currently no unaddressed problems in the identified systems that could affect safe operation of the plant and that management response to problems in the balance of plant was prompt and appropriate.

8 FOLLOWUP - ENGINEERING (92903)

8.1 (Closed) Unresolved Item 482/9505-02: Auxiliary Building 1988-Foot Pipe Chase Optional Opening

This item involved leaving an unevaluated construction opening between the two safety-related trains of piping in the 1988-foot level of the auxiliary building. The inspector reviewed Engineering Disposition No. 95-0418, "Optional Opening on DWG. C-OC1231." The disposition found that leaving the opening would not affect components or piping in the two rooms. Flooding, structural support, fire barriers, internal missiles, ventilation, and jet impingement barrier were also reviewed and determined to be unaffected. Allowing the opening to remain will require the revision of the USAR to reflect changes in the design basis accident environments due to the altered cross section of the environments and changes to drawings to reflect the opening. The inspector concluded that the disposition was complete and that the decision to leave the opening in place would not affect the safety of the plant.

8.2 (Closed) Inspection Followup Item 482/9419-02: Improperly Seated Worm Cartridge Bearing Locknut on ESW/Service Water Train B Cross-Connect Valve EF HV0026

This item concerned the discovery of an improperly seated worm cartridge bearing locknut on ESW/Service Water Train B Cross-Connect Valve EF HV0026. This condition prevented the valve from fully opening. Following an initial investigation, the licensee determined the cause of this event to be the

inappropriate installation of a setscrew, which allowed the locknut to back away from its intended setting. The licensee initiated PIRs 95-0049 and 95-0058 to evaluate the problem and to determine what corrective actions to take to preclude recurrence of this event.

The licensee's review determined that the inappropriately installed setscrew was the result of workmanship error. The licensee stated that had the technician adhered to the stop, think, act, and review principles, this error could have been avoided. As a result, the PIRs would be included in the required reading program for all mechanical and electrical maintenance personnel.

The licensee also reviewed the maintenance system database and identified 16 WRs that required the locknut and setscrew installation. The licensee reviewed these requests and selected two of the associated valves for sample inspections. In addition, the licensee inspected six other similarly sized valve operators for similar locknut setscrew problems. No additional problems were noted.

The licensee determined, that the improperly adjusted locknut had been installed upon the completion of Valve Operation Testing Evaluation System testing. To further reduce the probability of this event from recurring, the licensee plans to develop a new method of testing butterfly valves, which would not require the removal of the locknut to test the valve. Finally, the licensee also identified that Valve EF HV0026 had not been tested with differential pressure across the valve. Although the code did not require that the valve be tested in such a manner, such a test could have helped identify the inappropriately installed setscrew. As a result, the licensee plans to revise the procedure to require testing with differential pressure across Valve EF HV0026.

The licensee's actions to preclude recurrence of this event were found to be thorough.

9 ONSITE REVIEW OF AN LER (92700)

(Closed) LER 482/95-002: Failure to Demonstrate Operability of Containment Penetration Breaker

This report documented the licensee's discovery that Containment Electrical Penetration Overcurrent Protection Breaker NG02BAR131 had not been tested in accordance with TS 4.8.4.1(a)(2). This issue was discussed in NRC Inspection Report 50-482/95-11, paragraph 5.1. The LER did not identify any additional issues.

The inspector reviewed documentation for the completion of the corrective actions taken by the licensee. The inspector concluded that the licensee has taken appropriate actions to preclude recurrence of this event.

ATTACHMENT 1

1 PERSONS CONTACTED

M. R. Barbee, System Engineering
M. A. Blow, Superintendent, Chemistry
N. S. Carns, President and Chief Executive Officer
T. D. Damashek, Supervisor, Regulatory Compliance
C. E. Delong, Supervisor, Quality Control
R. B. Flannigan, Manager, Nuclear Engineering
M. M. Grimsley, Manager, Corporate Communication
R. A. Hammond, Supervisor Operations, Health Physics
S. F. Hatch, Performance Assessment
R. W. Holloway, Project Engineer, Design Engineering
J. W. Johnson, Superintendent, Security
W. M. Lindsay, Manager, Performance Assessment
B. S. Loveless, Superintendent, Resource Protection
B. T. McKinney, Manager, Operations
G. D. Moore, Manager, Maintenance
J. M. Pippin, Manager, Integrated Plant Scheduling
L. D. Ratzlaff, Systems Engineering
C. C. Reekie, Technical Specialist III, Regulatory Compliance
K. L. Scherich, Systems Engineering
M. A. Schreiber, Supervisor, Emergency Planning
H. L. Stubby, Supervisor, Technical Training
J. D. Weeks, Assistant to Vice President Plant Operations
M. G. Williams, Manager, Plant Support

The above licensee personnel attended the exit meeting. In addition to the personnel listed above, the inspectors contacted other personnel during this inspection period.

2 NRC PERSONNEL

D. F. Kirsch, Acting Branch Chief, Branch B
J. I. Tapia, Examiner

3 EXIT MEETING

An exit meeting was conducted on August 30, 1995. During this meeting, the inspectors reviewed the scope and findings of the report. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspectors.

ATTACHMENT 2

ACRONYMS

AC	air conditioning
EDG	emergency diesel generator
EP	emergency planning
ESW	essential service water
HP	health physics
kV	kilovolt
LER	licensee event report
NOED	Notice of Enforcement Discretion
NRR	Office of Nuclear Reactor Regulation
NSO	nuclear station operator
NUE	Notification of Unusual Event
OIR	Operations Information Report
PIR	Performance Improvement Request
PORV	power operated relief valve
QC	quality control
SO	supervising operator
SS	shift supervisor
TLD	thermoluminescent dosimetry
TS	Technical Specification
TSC	technical support center
USAR	Updated Safety Analysis Report
WR	work request