

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-331/94012(DRP)

Docket No. 50-331

License No. DPP-49

Licensee: IES Utilities Incorporated
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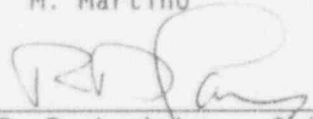
Facility Name: Duane Arnold Energy Center

Inspection At: Palo, Iowa

Inspection Conducted: May 7 through June 22, 1994

Inspectors: J. Hopkins
C. Lipa
M. Martino

Approved:


R. D. Lanksbury, Chief
Reactor Projects Section 3B

7/8/94
Date

Inspection Summary

Inspection on May 7 through June 22, 1994 (Report No. 50-331/94012(DRP))

Areas Inspected: Routine, unannounced inspection by the resident inspectors and a region based inspector of followup, followup of events, operational safety, maintenance, surveillance, onsite engineering, management meetings, and report review.

Results: An executive summary follows:

EXECUTIVE SUMMARY

Plant Operations

Failure to maintain the integrity of requalification examinations under development resulted in a violation (Section 2.a). Failure to properly maintain records documenting the participation of each licensed operator and senior operator in the requalification program resulted in a violation (Section 2.c). The licensee's decision to go to cold shutdown to make plant repairs was an example of their conservative operating philosophy. While performing the shutdown, operating crews effectively resolved minor equipment problems. Good discussion of contingency plans for the failed mechanical vacuum pump was noted (Section 4.a). Failure to provide an adequate procedure to reenergize a 4160 Vac essential bus from a standby diesel generator was considered a violation. Based on several examples of procedures not being able to perform their intended function, the adequacy of the licensee's review and approval process for procedures was questionable and in need of management attention (Section 4.b). The identification of the main turbine electro-hydraulic control (EHC) oil leak by an auxiliary operator was considered to be good (Section 5).

Maintenance

Failure to provide adequate procedures to rebuild two safety-related motors resulted in a non-cited violation (Section 2.b). Lack of adequate management review and control over an informal surveillance scheduling system resulted in a non-cited violation for a missed surveillance. The inspectors noted a thorough evaluation to determine the possible extent of the scheduling problem (Section 6).

Engineering

The inspectors noted active involvement of the engineering and maintenance departments in the resolution of the failed EHC pipe on a turbine control valve (TCV). Replacement of EHC piping on another TCV was considered proactive (Section 5). The lack of a formal, documented evaluation to determine if an unreviewed safety question existed by permanently installing a spool piece that cross-connected the residual heat removal and the spent fuel pool systems, and the failure to submit an update of the Updated Final Safety Analysis Report were considered an URI (Section 7.b).

Plant Support

A URI was identified for failure to maintain locked high radiation area door keys under the administrative control of the operating shift supervisor as required by technical specifications (Section 3.c).

DETAILS

1. Persons Contacted

- *J. Franz, Vice President Nuclear
- D. Wilson, Plant Superintendent, Nuclear
- *R. Anderson, Operations Supervisor
- *P. Bessette, Supervisor, Regulatory Communications
- *J. Bjorseth, Maintenance Superintendent
- *L. Henderson, Manager, Emergency Planning
- *M. Huting, Supervisor, Programs Engineering
- *J. Kinsey, Licensing Supervisor
- *M. McDermott, Manager, Engineering
- K. Peveler, Manager, Corporate Quality Assurance
- *S. Swails, Manager, Nuclear Training
- *G. Van Middlesworth, Assistant Plant Superintendent, Operations and Maintenance
- *T. Wilkerson, Manager, Radiation Protection
- *K. Young, Manager, Nuclear Licensing

In addition, the inspectors interviewed other licensee personnel including operations shift supervisors, control room operators, engineering personnel, and contractor personnel (representing the licensee).

*Denotes those present at the exit interview on June 22, 1994.

2. Followup (92701)

- a. (Closed) Unresolved Item 50-331/93023-02(DRS): Operator Licensing Examiner Standards, NUREG 1021, Revision 7, provided guidance for NRC administered requalification examination development, including examination security guidance. Examination Standard (ES) 602, Section C.1.c stated, "If the facility licensee submits a proposed (requalification) examination, those individuals involved in its development become subject to the security restrictions of ES-601 once examination development commences. These restrictions remain in effect until the NRC examination is given." Section C.4.b of ES-601 stated "those individuals with knowledge of the examination content shall not participate in any facility requalification training programs (e.g., instruction, examination, or tutoring) involving the licensees selected for the examination."

The licensee began examination development on August 10, 1993. Licensee training representatives delivered the facility developed requalification examination to the NRC on October 21, 1993. The signed security agreement provided at that time was signed by three individuals, two signed on October 19, 1993, and one on October 21, 1993. The developer of the examination and his supervisor were asked if they had given any instruction to the

proposed examination candidates between the time development of the examination had begun and the date the security agreement was signed. Both answered "yes". The developer had instructed in the areas of Curves and Limits and Emergency Operating Procedure (EOP) C, "EOP Flowchart Support Procedures."

All sections of the examination provided for review to the NRC were modified. Three simulator scenarios were deleted and replaced with one simulator scenario written by the NRC to prevent a potential compromise of the examination. The NRC replaced one additional job performance measure.

Additional investigation revealed that the licensee did not have an examination security procedure in place that would prevent compromising the integrity of examinations under development. Section 55.49 of Title 10 of the Code of Federal Regulations, "Integrity of examinations and tests" required that "Applicants, licensees, and facility licensees shall not engage in any activity that compromises the integrity of any application, test, or examination required by this part." Failure to maintain the integrity of examinations under development is a violation of 10 CFR 55.49 (331/94012-01(DRS)). This unresolved item (URI) is closed.

- b. (Closed) Unresolved Item 50-331/94008-01(DRP): Inadequate Maintenance Procedures for Safety-Related Motors. During the April 1994 evaluation for the excessive endplay of the "A" residual heat removal (RHR) service water (SW) motor, the licensee determined that the plant procedure used to rebuild the "A" and "C" RHR SW motors in 1991 was inadequate. Additionally, the evaluation determined that the maintenance department procedure used to rebuild the "B" and "C" river water supply (RWS) motors in 1985 and 1987 respectively, still currently had the same inadequacies as the 1991 RHR SW maintenance procedure.

During the current reporting period, the licensee completed an evaluation of the "A" RHR SW motor excessive endplay and of the adequacy of maintenance procedures used to rebuild large, vertically mounted pump motors. The evaluation concluded that when the inadequate maintenance procedure for the RHR SW motor was identified in 1991, the licensee had not reviewed other maintenance activities performed using the same inadequate procedure. Specifically, the effects of performing maintenance on the "A" and "C" RHR SW motors earlier in 1991, using the same inadequate procedure, were not considered. The inadequate procedure was not included in the plant's deviation reporting system. A more comprehensive review of the generic implications of the inadequate procedure would have identified the same problem with the RWS motor maintenance procedure.

The review of maintenance procedures that had been used to rebuild large, vertically mounted pump motors identified several other procedures that had no specific guidance for motor assembly. The procedures identified included RWS, RHR SW, RHR, condensate system, core spray, general service water, and emergency service water (ESW). The licensee concluded that the systems were operable because the predictive maintenance program trending data had not identified any concerns with motor, pump, or bearing vibrations. As part of the corrective actions, an action plan was developed to measure the bearing endplay of motors that (1) had not previously been measured or adjusted since the motor was rebuilt or (2) were rebuilt onsite with the assistance of vendor representatives and procedures. Additionally, the licensee planned to revise the affected maintenance procedures to incorporate specific motor assembly guidance. The inspectors reviewed the licensee's corrective actions and had no concerns.

Failure to provide adequate procedures to rebuild the RHR SW and RWS motors was a violation of 10 CFR Part 50, Appendix B, Criterion V, "Instruction, Procedures, and Drawings." This violation was not cited because the licensee's efforts in identifying and correcting the violation met the criteria specified in Section VII.B(2) of the "General Statement of Policy and Procedure for NRC Enforcement Actions," (Enforcement Policy, 10 CFR Part 2, Appendix C). As stated in inspection report (IR) 331/94008, these two maintenance procedures were further examples of the licensee's failure to ensure vendor recommended maintenance activities were incorporated into plant procedures. While the consequences of these particular procedures problems were minimal, the potential for significant equipment damage due to inadequate maintenance procedures existed. Continued effort was required to ensure that important technical information was incorporated into plant procedures. Additionally, the limited scope of the 1991 evaluation of the inadequate RHR SW procedure re-emphasized the need for a problem reporting system with a low reporting threshold and with comprehensive evaluations. This URI is closed.

- c. (Closed, Unresolved Item 50-331/94008-02(DRS): Requalification Training Records. This item involved the review of training attendance sheets to determine if the records used to document attendance in the Licensed Operator Requalification Training Program met the NRC's requirements as outlined in 10 CFR Part 55. The inspection consisted of a review of program implementing procedures, representative records, and interviews with training department personnel.

Section 55.59(c)(5) of Title 10 of the Code of Federal Regulations, "Requalification Program Requirements," required that "The facility licensee shall maintain records documenting the participation of each licensed operator and senior operator in the requalification program." The licensee's methods of maintaining records for course and class attendance, failed to accurately

reflect the training received by licensed operators. Further, the licensee failed to have an implementing procedure that described how missing a class of an approved training program was to be controlled and documented.

Failure to properly maintain records documenting the participation of each licensed operator and senior operator in the requalification program is a violation of 10 CFR 55.59(c)(5), (331/94012-02(DRS)). This URI is closed.

Two cited and one non-cited violations were identified in this area. No deviations were identified.

3. Followup of Events (93702)

During the inspection period, the licensee experienced several events, some of which required prompt notification of the NRC pursuant to 10 CFR 50.72. The inspectors pursued the events onsite with licensee and/or other NRC officials. In each case, the inspectors verified that the notification was correct and timely, if appropriate, that the licensee was taking prompt and appropriate actions, that activities were conducted within regulatory requirements, and that corrective actions would prevent future recurrence. The specific events are as follows:

- May 17, 1994 - Reactor water cleanup (RWCU) isolation due to offsite electrical disturbance.
- May 24, 1994 - "B" emergency service water (ESW) pump trip.
- May 28, 1994 - Reactor shutdown and forced outage. (See section 4.a for details.)
- May 29, 1994 - Isolation of shutdown cooling. (See section 4.b for details.)
- June 9, 1994 - Locked high radiation area door key lost.
- June 9, 1994 - Leak from control rod drive pressure differential transmitter.

a. RWCU Isolation Due to Offsite Electrical Disturbance.

On May 17, 1994, with the reactor at approximately 100 percent power, the "B" RWCU pump tripped on low voltage due to an offsite electrical disturbance. As a result of the pump trip and RWCU system coastdown, a momentary high differential flow alarm was received. As a precaution, the RWCU system was manually isolated. The electrical disturbance was caused by a fault with an offsite 161 Kv circuit breaker in the electrical distribution system. No other components onsite were affected by the disturbance. After determining that an actual high differential flow signal had not existed, the RWCU system was returned to service. The licensee

notified the NRC in accordance with 10 CFR 50.72 that a manual engineered safety feature actuation had occurred. Upon further review, the licensee determined that the high differential flow signal was the result of an invalid signal. The 10 CFR 50.72 notification was retracted on May 24.

The inspectors were concerned that the low voltage condition that tripped the "B" RWCU pump had not actuated any other degraded voltage circuitry. The licensee reviewed the time delays and voltage setpoints for the electrical protection systems and concluded that the system had operated as designed. The inspectors reviewed the licensee's evaluation and had no immediate concerns.

b. "B" ESW Pump Trip.

On May 24, 1994, after approximately 3 hours of operation for a flow verification test on the "B" ESW pump, the motor stopped for no apparent reason. After an investigation determined that no circuit breakers were opened, fuses were blown, or thermal overloads had opened, the pump was restarted and the test resumed. Approximately 1 hour later, the motor stopped again. The pump was declared inoperable and the licensee started trouble shooting activities. The initial indications were that high resistance across a normally closed stop push-button located on the motor controller had dropped enough voltage to cause an auxiliary relay to de-energize. When the auxiliary relay de-energized, the main line relay de-energized and stopped the motor. The push-button was replaced, post-maintenance and flow verification testing were satisfactorily completed, and the pump was declared operable on May 26. The "A" ESW motor controller had a similar push-button configuration. The resistance across that push-button was measured and no concerns were identified.

The licensee reviewed the motor control circuit and concluded that the high resistance contact would not have affected operation following an automatic start of the "B" ESW motor. However, due to a design difference, high resistance in the "A" ESW motor push-button contact could have affected operation following an automatic start had it existed. The licensee was in the process of developing a list of push-buttons and switches that were infrequently used to determine if routine resistance measurements or periodic operation would prevent high resistance from developing across normally closed contacts. A description of the event was placed on the "Notepad" network of the Institute of Nuclear Power Operations. The licensee determined that the event was not reportable under 10 CFR Part 21. The inspectors will continue to evaluate the licensee's root cause evaluation and corrective actions.

c. Locked High Radiation Area (LHRA) Door Key Lost.

On June 9, 1994, the key to the fuel pool cooling and cleanup system skimmer surge tank room, a LHRA, was found in the reactor building. The key had been on the second assistant nuclear station operating engineer's (2nd ANSOE) key ring, and had been "loaned" to the first (1st) ANSOE, on shift. After the 1st ANSOE had completed a system walkdown of the skimmer surge tank room, the key was misplaced. During the next shift turnover, the 2nd ANSOE key ring was turned over to the oncoming 2nd ANSOE as required by plant procedures. The offgoing 2nd ANSOE forgot that the key had been "loaned" and did not cover this in the shift turnover. The shift turnover procedure had not required that individual keys on the key ring be specifically accounted for. When the key was found, the licensee conducted an investigation of the event and concluded that there were no unplanned entries of the skimmer surge tank room and there were no radiation overexposures. In order to prevent recurrence, the licensee's planned corrective actions included (1) transfer control of the LHRA keys to the health physics organization, (2) require the non-licensed operators to check out LHRA keys used for routine rounds each shift and return them at the end of each shift, and (3) provided the operating shift supervisor (OSS) with LHRA keys in the control room for emergency use.

Technical specification (TS) 6.9.3 required that LHRA keys be under the administrative control of the OSS on duty and/or the health physics supervisor. Operating department instruction (ODI) 015, "Control Room Controlled Keys," required that the OSS issue all LHRA keys. The LHRA keys were not being issued by the OSS or audited on a daily basis as required by ODI-015. Failure to maintain LHRA keys under the administrative control of the OSS as required by TS 6.9.3 was considered an URI pending further review by Region III radiation protection specialists (331/94012-03(DRSS)). The inspectors will continue to evaluate the licensee's control of LHRA keys.

No violations or deviations were identified in this area. One URI was identified.

4. Operational Safety Verification (71707) (71710)

The inspectors observed control room operations, reviewed applicable logs, and conducted discussions with control room operators during the inspection. The inspectors verified the operability of selected emergency systems, reviewed tagout records, and verified proper return to service of affected components. Tours of the reactor building and turbine building were conducted to observe plant equipment conditions, including potential fire hazards, fluid leaks, and excessive vibrations and to verify that maintenance requests had been initiated for equipment in need of maintenance. It was observed that the Plant Superintendent, Assistant Plant Superintendent of Operations, and the Operations

Supervisors were well-informed of the overall status of the plant and that they made frequent visits to the control room. The inspectors, by observation and direct interview, verified that the physical security plan was being implemented in accordance with the station security plan. The inspectors observed plant housekeeping and cleanliness conditions and verified implementation of radiation protection controls.

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established under technical specifications, Title 10 of the *Code of Federal Regulations*, and administrative procedures.

a. Forced Outage to Cold Shutdown

On May 28, 1994, the licensee commenced a controlled shutdown from approximately 100 percent power to repair a leak in the main turbine electro-hydraulic control (EHC) oil system (see section 5 for details). The main turbine was taken off line on May 29 and the reactor was manually scrammed from approximately 9 percent power in accordance with normal shutdown procedures. The plant entered cold shutdown on May 30. The inspectors considered the licensee's decision to go to cold shutdown to make plant repairs as an example of a conservative operating philosophy. Portions of the shutdown were observed by the resident inspector with only minor equipment problems, such as a failure of the mechanical vacuum pump, noted. The operating crews effectively resolved the problems, and good discussion of contingency plans for the failed vacuum pump was noted. The inspectors had no immediate concerns.

On June 3 the licensee commenced a reactor startup, and on June 6 the turbine was synchronized to the grid ending the forced outage. Minor equipment problems, such as a broken solder connection on the rod select matrix, a degraded relay in the rod sequence control system (RSCS) that caused a rod insert block, and seat leakage on the inlet scram valve for control rod 10-39 were encountered, delaying the startup. The inspectors followed up on the equipment problems and repairs and had no immediate concerns.

b. Station Blackout Procedure

During administration of initial operator license examinations on June 7, 1994, the NRC examination team noted that the operating crew in the simulator had difficulty reenergizing an essential bus from a standby diesel generator (SBDG) during station blackout conditions.

During the simulator exam the crew used Section 5.4, "Reenergizing Dead Essential Bus 1A3[4] From SBDG System," of operating instruction (OI) 324, "Standby Diesel Generator System," Revision 31, to start a SBDG and attempt to reenergize an essential bus. The SBDG ran unloaded without any cooling from ESW for about 10 minutes while the crew tried to understand what the

procedure was directing them to do. Operating a SBDG without cooling would significantly risk overheating the SBDG and losing the only method of restoring 4160 Vac power.

The following procedural deficiencies were identified:

- * Section 5.4 of OI-324 directed the operators to verify the SBDG was started in accordance with Section 5.2, "Fast Manual Startup of the SBDG System." If the SBDG was not started, the operators were directed to Section 5.2. Section 5.2 directed the operators to start an ESW pump and a SBDG prelube oil pump prior to starting the SBDG. However, since the essential bus was de-energized, power was not available to either of these pumps.
- * Section 5.4 of OI-324 incorrectly directed the operators to Section 6.1, "Reenergizing a Dead 4160V Essential Bus 1A3[4] from Startup or Standby (Transformer)" of OI 304.2, "4160V/480V Essential Electrical Distribution System," rather than Section 6.2, "Reenergizing 4160V Essential Bus 1A3[4]." Section 6.2 included instructions on reenergizing an essential bus using a SBDG.

These deficiencies were discussed during the NRC examination team exit meeting on June 9, 1994.

The licensee's immediate corrective actions included a complete revision of Section 5.4 of OI-324. The revision eliminated the need to use other procedures and took into account the lack of power for ESW and SBDG prelube oil pumps. The revision was effective on June 10. The procedure was tested successfully by a crew in the simulator on June 14.

The initial investigation determined that Revision 21 to OI-304.2, dated March 16, 1994, added a new section to reenergize a dead 4160 Vac essential bus from the startup or standby transformer. The existing Section 6.1 was renumbered Section 6.2. Changing OI-304.2 without thoroughly evaluating the effect the change had on other procedures, introduced the error in Section 5.4 of OI-324 described above. The licensee was reviewing previous revisions to OI-324 as part of the root cause evaluation.

Criterion V of 10 CFR Part 50, Appendix B, "Instructions, Procedures, and Drawings," required, in part, that activities affecting quality be prescribed by procedures appropriate to the circumstances. Operating instruction 324, Section 5.4, required, in part, that operators perform Section 5.2 of OI-324 and Section 6.1 of OI-304.2 to reenergizing a dead essential 4160 Vac bus from a SBDG. Section 5.2 of OI-324 directed the operators to start an ESW pump and a SBDG prelube oil pump prior to starting the SBDG. Since the essential 4160 Vac bus was de-energized, power was not available to either pump. Section 6.1 of OI-304.2,

provided instructions to reenergize a dead essential 4160 Vac bus from the startup or standby transformer vice the SBDG. The failure of OI-324 to provide adequate steps to reenergize an essential 4160 Vac bus from a SBDG was a violation of 10 CFR 50, Appendix B, Criterion V (331/94012-04(DRP)).

The inspectors had previously noted several examples of procedures that could not perform their intended functions. Examples included OI-324, the RHR SW and RWS motor maintenance procedures (section 2.b above), a rod worth minimizer surveillance procedure changed in April 1994, and several procedures identified during the refueling outage in September 1993 (see IR 331/93015 for additional information). Based on these examples, the inspectors were concerned with the adequacy of the licensee's review and approval process for procedures. Specifically, there appeared to be a lack of detailed, technical evaluation for the procedure revisions. An NRC inspection in September 1993 identified a violation for inadequate management control and oversight of the procedure change process (see IR 331/93016 for additional information). The licensee had started an audit of the document control process on June 14, 1994, as part of the corrective actions for the violation in IR 331/93016. The audit planned to evaluate the procedure revision process and to determine if selected procedures could perform their intended function, as written. The licensee was requested to provide the corrective actions planned and in place to ensure that the procedure review and approval process was receiving adequate management attention and oversight. The inspectors will continue to evaluate the adequacy of the licensee's procedure review and approval process.

One violation and one URI were identified in this area. No deviations were identified.

5. Monthly Maintenance Observation (62703)

Station maintenance activities of safety-related systems and components listed below were observed and/or reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides, and industry codes or standards, and in conformance with technical specifications (TS).

The following items were considered during this review: the limiting conditions for operation were met while components or systems were removed from service; approvals were obtained prior to initiating work; activities were accomplished using approved procedures and were inspected as applicable; functional testing and/or calibrations were performed prior to returning components or systems to service; quality control records were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; radiological controls were implemented; and fire prevention controls were implemented.

Work requests were reviewed to determine status of outstanding jobs and to assure that priority was assigned to safety-related equipment maintenance which might affect system performance.

The following observations were made:

EHC System Oil Leak

On May 28, 1994, the licensee identified a leak in the EHC system. The EHC oil leak was from a cracked socket weld on the piping to turbine control valve (TCV)-2 hydraulic operator. The portion of pipe with the cracked weld was replaced and tested satisfactorily.

The identification of the leak was considered to be good. During auxiliary operator rounds, the operator appropriately questioned a decrease in the EHC reservoir level of approximately 1 inch, even though the level was still within the acceptable range. Corrective actions included replacement of a portion of the piping to TCV-2, as well as replacement of a portion of the piping to TCV-1, since the configuration was similar. The inspectors considered the efforts to replace the piping to TCV-1 to be proactive and noted active involvement of engineering and maintenance to resolve the issue. The inspectors will continue to followup on the licensee's determination of root cause and resolution of this issue.

No violations or deviations were identified in this area.

6. Monthly Surveillance Observation (61726)

The inspectors observed technical specification (TS) required surveillance testing and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation were met, that removal and restoration of the affected components were accomplished, that test results conformed with TS and procedure requirements and were reviewed by personnel other than the individual directing the test, and that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The following observations were made:

Missed Response Time Testing for Reactor High Pressure Scram Pressure Switches

On May 17, 1994, during scheduling of reactor protection system (RPS) surveillance test procedure (STP) 41A025-CY, "Reactor High Pressure Instrument Response Time Test," the licensee determined that the STP for one of the four pressure switches (PSs) (PS 4552) had not been performed within the required interval. PS 4552 was declared inoperable, successfully response time tested, and declared operable on May 18. The last STP on PS 4552 had been performed on April 18, 1984, a period of 120 months. Technical specification (TS) 4.1.A.2 required that each of

the four pressure switches be response time tested once each operating cycle such that: (1) at least one channel from each of the two logic trains (i.e. train A or B) was tested at least once each 36 months and (2) all channels were tested at least once each 72 months. The STP for PS 4552 should have been performed in December 1989 in accordance with the established schedule. The informal tracking system used to schedule which specific PS was to be tested indicated that it had been performed in 1989, but there was no documentation that the response time testing had been completed.

The licensee's initial evaluation was that the cause of the missed surveillance in December 1989 was inadequate tracking and scheduling of the STP. For most STPs, each channel would be tested when the STP was performed. However, for STPs with long frequency intervals (i.e. one channel per operating cycle), such as these pressure switches, or with numerous components (i.e. relief valve testing, snubbers, and fire protection equipment), the computer system had not identified which specific channel or component was due. An informal tracking system had been used to record which channels or components were due. As stated above, when STP 41A025-CY was scheduled, the licensee determined that PS 4552 was due, but had not been performed since 1984. The inspectors noted a thorough evaluation to determine the possible extent of the scheduling problem.

The licensee also determined that the four pressure switches were replaced in 1987 due to instrument drift problems. The design change procedure (DCP) for the pressure switch replacement required response time testing prior to declaring the four new pressure switches operable. There was a reference in the DCP that all required testing for the pressure switches had been successfully completed. However, there was no response time test data in the records. Three of the four pressure switches were successfully response time tested between 1988 and 1991 following the established surveillance schedule. As stated above, PS 4552 was scheduled for testing in December 1989, but the testing was not performed.

Between August 1991 and October 1992 all four pressure switches were again replaced due to instrument performance problems. Response time testing was not specified as part of the post-maintenance testing, and there was no indication that the testing was performed. The licensee determined that the maintenance planners had not considered response time testing as a requirement. Pressure switch 4551 was successfully tested in February 1993 following the established surveillance schedule.

On May 19, PS 4549 and PS 4550 were declared inoperable since they had not been tested when they were replaced in August 1991 and October 1992, respectively. The NRC was notified in accordance with 10 CFR 50.72 that the lack of response time testing of the RPS high pressure scram pressure instruments could have prevented the fulfillment of a safety function. Pressure switches 4549 and 4550 were successfully tested that same day. Pressure switch 4549 was subsequently replaced due to switch

contact chattering during the performance of the test. The replacement PS was successfully tested, and both pressure switches were declared operable on May 20.

The licensee's immediate corrective actions were to review other STPs which were controlled using the same informal scheduling system. No other examples of missed STPs were identified. Long term corrective actions included: (1) revising the STP scheduling system to more clearly document which channels were tested, (2) require a periodic supervisory review of the schedule, and (3) form a corrective action team to recommend additional corrective actions and to ensure that surveillance requirements with unique schedules were being properly implemented. The inspectors reviewed the licensee's corrective actions and had no immediate concerns. Additionally, the licensee was in the process of evaluating other RPS circuits that required response time testing. Specifically, the licensee was questioning if there was a need to conduct testing when individual components were replaced in circuits that required response time testing. A quality deficiency report (QDR) was initiated to document the evaluation. The inspectors will continue to evaluate the licensee's review of the issue.

Failure to test PS 4552 from April 18, 1984, until May 17, 1994, resulted in: (1) PS 4552 not being tested for a period of 120 months versus the TS limit of 72 months; and (2) the "B" RPS train not being tested from April 1984 until September 1988 and from September 1988 until February 1993, both periods of 53 months versus the TS limit of 36 months were a violation. This violation was not cited because the licensee's efforts in identifying and correcting the violation met the criteria specified in Section VII.B(2) of the "General Statement of Policy and Procedure for NRC Enforcement Actions," (Enforcement Policy, 10 CFR Part 2, Appendix C).

One non-cited violation and no deviations were identified in this area.

7. Onsite Engineering (37551)

a. Quality Level Evaluation of SBDG Governor Servo-motor Booster Assembly

On May 1, 1994, an oil leak on the "B" SBDG governor servo-motor booster assembly was identified. The licensee's initial corrective action was to repair the servo-motor booster assembly. The inspectors were concerned that the repair parts were declassified from quality level one to level four without sufficient justification. Specifically, the justification contained on the Classification of Subcomponents and Materials (CSM) form, used to determine the required quality level, did not adequately document the basis for the reduction from quality level one to level four. Subsequently, the licensee received a complete quality level one assembly and replaced the defective assembly instead of rebuilding it. (See IR 331/94008 for additional information.)

On May 25, 1994, a telephone conference was held between members of the licensee's engineering organization, a Region III engineering supervisor, and the resident inspector to discuss the level of detail needed to support the declassification of quality level one parts. One of the conclusions reached during the discussion was that the CSM process should provide sufficient detail for an independent reviewer to reach the same conclusion as the preparer. It was acknowledged that the independent reviewer may require some plant-specific information on the CSM procedure, as well as knowledge of equipment performance history and/or vendor information. However, the documentation in the CSM must be specific enough for the reviewer to independently derive the original conclusion reached by the document preparer. The licensee provided a revision to the CSM for the governor booster assembly. The inspectors reviewed the revised CSM and had no additional concerns.

b. Permanent Installation of Spool Piece That Cross-connects the RHR and the Fuel Pool Cooling and Cleanup (FPCC) Systems.

In February 1992, the spool piece that cross-connects the RHR and the FPCC systems was permanently installed. (The spool piece allowed the RHR system to provide supplemental cooling to the spent fuel pool through the FPCC system.) A change to the Updated Final Safety Analysis Report (UFSAR) was initiated, but never submitted. In February 1994, the licensee determined that the update to the UFSAR had not been submitted, and QDR 94-027 was initiated to determine why the change had not been submitted. On May 13, 1994, during the QDR evaluation process, the licensee determined that there was no current seismic calculation to justify the operability of the RHR and FPCC systems with the spool piece permanently installed. The seismic evaluation was completed that day and no concerns were identified.

The inspectors identified two major concerns with the process used to permanently install the spool piece. First, it appeared that after an informal evaluation, the licensee concluded that the permanent installation of the spool piece was not a change to the facility as described in the UFSAR. Based on that conclusion, there was no formal, documented evaluation to determine if an unreviewed safety question existed. (The UFSAR described the cross-connection between the systems as two normally closed manual isolation valves in the RHR system that were seismic category I and a removable spool piece in the FPCC system that was not seismically qualified.) Secondly, the proposed update to the UFSAR had not been submitted in 1992. Since the issue was identified late in the report period, the lack of a formal, documented evaluation to determine if an unreviewed safety question existed by permanently installing the RHR to FPCC spool piece, and the failure to submit an update of the UFSAR were

considered an URI (331/94012-05(DRP)). The inspectors will continue to evaluate the adequacy of licensee's review and approval process for changes to the facility.

No violations or deviations were identified in this area. One URI was identified.

8. Public Presentation of the Systematic Appraisal of Licensee Performance (SALP) 11 Results

On May 10, 1994, Messrs. H. Miller, Deputy Regional Administrator, Region III; G. Grant, Director, Division of Reactor Safety, Region III; J. Hannon, Director, Project Directorate III-3, Office of Nuclear Reactor Regulations (NRR); and other members of the Region III and NRR staffs met publicly with the Chairman of the Board and Chief Executive Officer, IES Utilities Incorporated, and other senior licensee management representatives and staff at the Duane Arnold Energy Center to present the results of the SALP 11 report. Following the presentation, a member of the public expressed concerns regarding the use of procedures at the plant. After evaluating the issues, the inspectors concluded that there were no safety or regulatory concerns.

9. Report Review (90713)

During the inspection period, the inspectors reviewed the licensee's monthly operating report for May 1994. The inspectors confirmed that the information provided met the requirements of TS 6.11.1.C and Regulatory Guide 1.16.

No violations or deviations were identified in this area.

10. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations or deviations. Unresolved items disclosed during the inspection are discussed in Sections 3.c, 4.c, and 7.b.

11. Violations For Which A "Notice of Violation" Will Not Be Issued

The NRC uses the Notice of Violation to formally document the failure to meet a legally binding requirement. However, because the NRC wants to encourage and support license initiatives for self-identification and correction of problems, the NRC will not issue a Notice of Violation if the criteria set forth in Section VII.B(2) of the "General Statement of Policy and Procedure for NRC Enforcement Actions," (Enforcement Policy, 10 CFR Part 2, Appendix C) are met. Violations of regulatory requirements identified during the inspection for which a Notice of Violation will not be issued are discussed in Sections 2.b and 6.

12. Exit Interview (30703)

The inspectors met with licensee representatives (denoted in Section 1) on June 22, 1994, and informally throughout the inspection period and summarized the scope and findings of the inspection activities. The inspectors also discussed the likely information content of the inspection report with regard to documents or processes reviewed by the inspectors. The licensee did not identify any such documents or processes as proprietary. The licensee acknowledged the findings of the inspection.