

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 50-400
License No: NPF-63

Report No: 50-400/98-04

Licensee: Carolina Power & Light (CP&L)

Facility: Shearon Harris Nuclear Power Plant, Unit 1

Location: 5413 Shearon Harris Road
New Hill, NC 27562

Dates: April 12 - May 23, 1998

Inspectors: J. Brady, Senior Resident Inspector
R. Hagar, Resident Inspector-in-training
R. Chou, Reactor Inspector, Sections M1.1, M2.1
G. MacDonald, Project Engineer, Section E7.2
E. Brown, Resident Inspector, Brunswick Plant,
Sections R1.1; F1.2

Approved by: M. Ernstes, Acting Chief, Projects Branch 4
Division of Reactor Projects

Enclosure 2

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EXECUTIVE SUMMARY

Shearon Harris Nuclear Power Plant, Unit 1 NRC Inspection Report 50-400/98-04

This integrated inspection included aspects of licensee operations, engineering, maintenance, and plant support. The report covers a 6-week period of resident inspection; in addition, it includes the results of announced inspections by a regional reactor inspector.

Operations

- In general, the conduct of operations was professional and safety-conscious. Routine activities were adequately performed. Operations' shift crews were appropriately sensitive to plant equipment conditions and maintained a questioning attitude in relation to unexpected equipment responses (Section 01.1).
- Equipment was being maintained in acceptable condition per plant procedures and housekeeping was effective in maintaining plant areas free of unnecessary materials or debris. Equipment deficiencies were appropriately identified and were being scheduled and worked in accordance with the licensee's work scheduling system. One violation was identified for failing to hang a clearance tag as required by procedure (Section 02.1).
- Control Room staffing and overtime usage met the requirements of the Technical Specifications. A new operations manager was selected who had been a licensed senior reactor operator at the H. B. Robinson Plant and met the Technical Specification requirements (Section 06.1).
- Quality assurance activities were being conducted as required by procedures. Identification of adverse conditions continued to be a strength. However, Plant Nuclear Safety Committee discussions about one previous NRC violation were not focussed on ensuring that the licensee response addressed the overall root cause. This shortcoming resulted in an NRC request for an additional response (Section 07.1).

Maintenance

- The six maintenance activities observed were being conducted with work packages present and in active use. In addition, the participating technicians were experienced and knowledgeable (Section M1.1).
- Thirteen surveillances were adequately conducted. Maintenance and operations personnel performing the surveillance were skillful and knowledgeable (Section M2.1).
- An unresolved item was opened in relation to technical specification surveillance requirements that were required to be accomplished at shutdown and were being conducted at power. One example was identified in relation to testing of the gross failed fuel detector component cooling water (CCW) isolation valves on low surge tank level. The

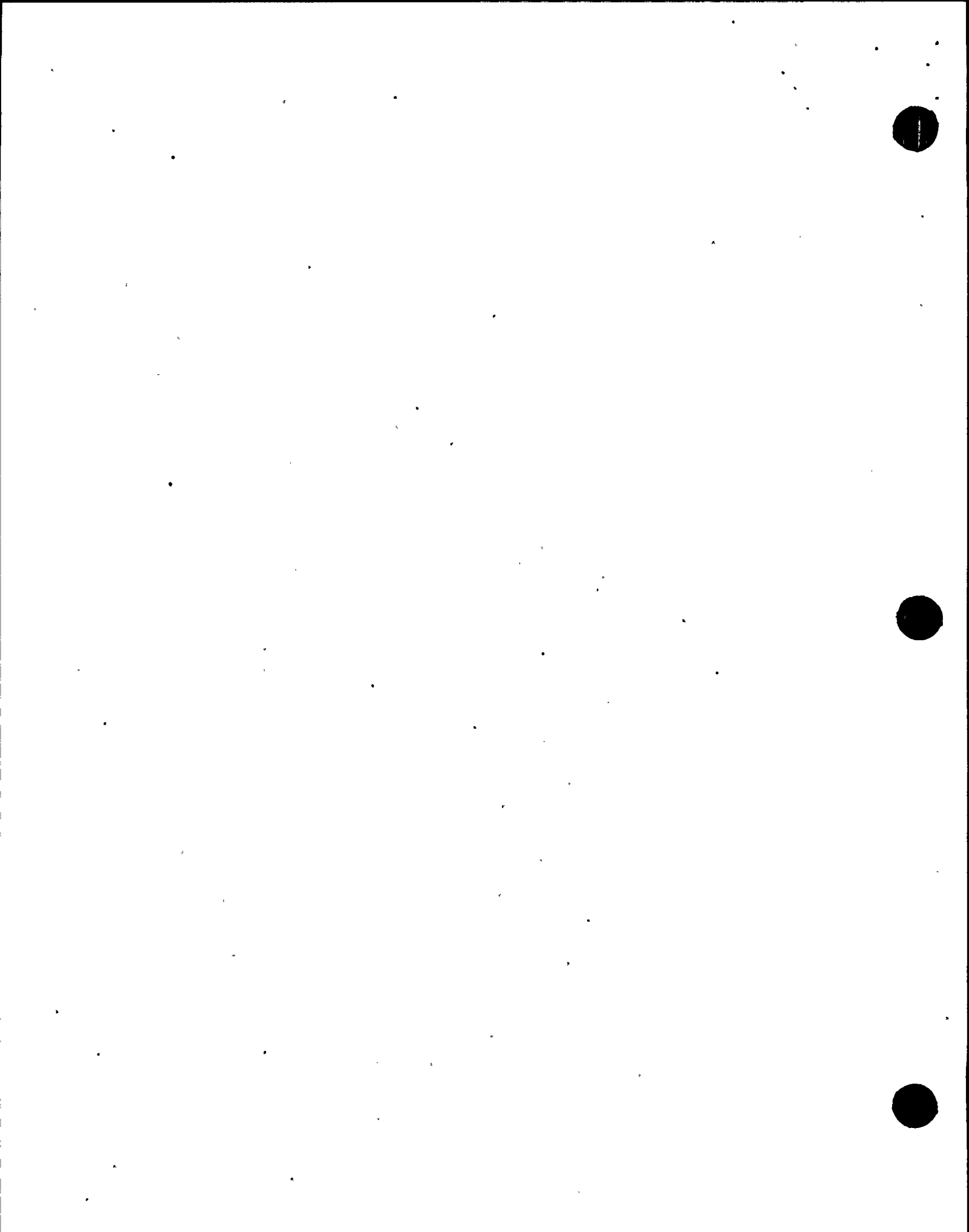
licensee subsequently identified three other examples by the end of the period, as reported in LER 50-400/98-005 (Section M7.1).

Engineering

- An operability evaluation for reactor head vent valve 1RC-905 was conducted in accordance with required procedures. However, it was not performed until approximately 8 months after the condition occurred due to management willingness to live with the out-of-service condition. This condition constituted an unnecessary operational burden on plant operators (Section E1.1).

Plant Support

- The inspectors found radiological controls to be in accordance with required procedures. The general approach to the control of contamination and dose for the site was effective. Teamwork between the various departments continued to be a major contributor to the good control of dose (Section R1.1).
- The licensee's program for testing of continuous air monitors satisfied the specifications set forth in the Final Safety Analysis Report (Section R1.1).



Report Details

Summary of Plant Status

Unit 1 began this inspection period at approximately 100 percent power. On April 24, 1998, a down-power to approximately 30 percent power was made to repair a potential condenser tube leak. Several nonsafety equipment problems prolonged the time at reduced power. The unit was returned to 100 percent power on April 27, 1998. It remained at 100 percent power through the remainder of the period.

I. Operations

01 Conduct of Operations

01.1 General Comments (71707)

The inspectors conducted frequent reviews of ongoing plant operations including control room evolutions, shift turnovers, end-of-shift briefings, and other operations activities. In general, the conduct of operations was professional and safety-conscious. Routine activities were adequately performed in accordance with required procedures. Operations shift crews were appropriately sensitive to plant equipment conditions and maintained a questioning attitude in relation to unexpected equipment responses.

02 Operational Status of Facilities and Equipment

02.1 General Comments

a. Inspection Scope (71707)

The inspectors conducted frequent tours of the facility to inspect equipment condition, housekeeping, and proper use of clearances. The inspectors observed the hanging of clearance 98-00444 to isolate the 1MS-62, "B" steam generator power operated relief valve, for maintenance. The inspectors also observed the hanging of clearance 98-00401 to isolate air handler AH-11 1B-SB for maintenance.

b. Observations and Findings

Equipment was being maintained in acceptable condition per plant procedures and housekeeping was effective in maintaining plant areas free of unnecessary materials or debris. Equipment deficiencies were appropriately identified and were being scheduled and worked in accordance with the licensee's work scheduling system.

During the clearance operation for 1MS-63, a power-operated relief valve block valve, the inspectors observed that the operator hanging the clearance closed the valve as required by the clearance form, but forgot to hang the tag. The independent verifier checked the position of the valve, but did not identify that the tag was not hung. Both operators



initialed the clearance form, indicating that the tag was hung and was independently verified, without the clearance tag having been hung on the valve. When the initial operator began to leave the area, an inspector questioned the individuals as to whether they were going to hang the tag, since it was clear that they had forgotten. The individuals then hung and properly verified the tag. Condition Report (CR) 98-01231 was written to address this problem.

Procedure OPS-NGGC-1301, Equipment Clearance, Revision 2, provides instructions for the clearance process. Section 4.10 contained the responsibilities of the tag hanger, which included positioning components as specified on the clearance tag sheet and installing clearance tags. Section 4.11 contained the responsibilities of the tag verifier, which included ensuring that components were positioned as required by the clearance tag sheet and ensuring that clearance tags were installed on the components specified on the clearance tag sheet. Section 9.3.2 specifically indicated that the tag hanger shall initial the "Attached by" block in the placement section of the Clearance Tag Sheet, signifying tag placement and component positioning. Section 9.3.2 also specifically indicated that the tag verifier shall verify the clearance tags and shall initial in the "IND VER" block in the placement section of the Clearance Tag Sheet, signifying proper verification. The inspectors found that Procedure OPS-NGGC-1301 was not followed, in that the clearance tag for valve IMS-62 was not hung and the tag hanger and tag verifier initialed that it had been. The failure to follow Procedure OPS-NGGC-1301 was identified as a violation of Technical Specification 6.8.1.a, and was designated violation 50-400/98-04-01, Clearance Tag Not Hung.

The inspectors also observed the hanging of clearance 98-00401 to isolate air handler AH-11 1B-SB for maintenance. The inspectors noted that the tag hanger and the tag verifier checked the clearance for discrepancies and found none, and that they properly verified tag numbers prior to hanging the tags. The tag hanger communicated effectively and efficiently with the control room staff.

c. Conclusions

Equipment was being maintained in acceptable condition per plant procedures and housekeeping was effective in maintaining plant areas free of unnecessary materials or debris. Equipment deficiencies were appropriately identified and were being scheduled and worked in accordance with the licensee's work scheduling system. One violation was identified for failing to hang a clearance tag as required by procedure.

02.2 Engineered Safety Feature (ESF) System Walkdowns

a. Inspection Scope (71707)

The inspectors walked down accessible portions of the Emergency Service Water (ESW) system.

b. Observations and Findings

The inspectors found that accessible valves in the main system flow path were in the correct positions; were locked or sealed, as appropriate; and did not exhibit excessive packing leakage, missing hand-wheels, or bent stems. The inspectors also found that major system components were correctly labeled, lubricated, cooled, ventilated, and free of leakage, and that the components inspected for the system were consistent with the Final Safety Analysis Report (FSAR) description. The inspectors noted no actual or potential adverse environmental conditions, and no equipment conditions or items that might degrade plant performance.

The inspectors also found that the system lineup procedure, system drawings, FSAR description, and as-built configuration were consistent.

c. Conclusions

The ESW system was operable, and its configuration was appropriate for the current mode of plant operation.

06 Operations Organization and Administration

06.1 General Comments (71707)

The inspectors observed control room staffing and reviewed overtime for October, November, and December, 1997. Control room staffing and overtime met TS requirements. A new operations manager was selected who had been a licensed senior reactor operator from the Robinson Plant (license number SOP 38970-5). The new manager's qualifications met the requirements of the TS.

07 Quality Assurance in Operations

07.1 General Comments

a. Inspection Scope (40500, 71707)

During the inspection period, the inspectors reviewed licensee quality assurance activities, including:

- Plant Nuclear Safety Committee (PNSC) meetings on April 22, 1998, April 24, 1998, May 11, 1998, and May 13, 1998
- Plant Review Meeting on April 21, 1998

In addition, the inspectors reviewed various condition reports as part of their assessment.

b. Observations and Findings

The inspectors observed that the identification of adverse conditions was in accordance with procedures and continued to be a strength. The Plant Review Meeting addressed overall site issues and maintained an



appropriate focus on safety. It was attended by senior members of corporate management who were actively involved in the meeting. The inspectors observed that PNSC quorum requirements were met; they also reviewed the qualifications for one alternate committee member and found that they met TS requirements. Discussions at PNSC meetings were focussed on safety and included active participation by all members.

On April 22, 1998, the PNSC meeting included a discussion of NRC violation 50-400/98-01-01, example 1, which related to control room chart recorders. The inspection report had identified that this licensee-identified violation was being cited because previous corrective action had not corrected the problem. The licensee draft response to this violation presented to PNSC did not address why the previous corrective action had failed to correct the problem. There was considerable discussion in relation to ensuring that the corrective action presented in the response would prevent recurrence. However, there was no discussion about adding to the response the reasons why the previous corrective action had not worked. During the same meeting, a root cause investigation was discussed for condition report 98-00671 in relation to a control room chart recorder timing problem that occurred on March 6, 1998, subsequent to violation 98-01-01. This incidence occurred because the previous corrective action had not been prompt. The inspectors found that the "results achieved" section of the proposed response had not identified this additional recorder problem incidence, nor that the additional incidence indicated that the corrective action results had not been successful in preventing recurrence. There were no PNSC suggestions that the two incidences be linked and addressed in the response.

Although the discussions about the chart recorders were spirited, each incidence was treated separately rather than collectively. This discussion indicated a lack of focus on the root cause of the violation. As a result, an inadequate response was submitted on April 24, 1998, and the NRC requested a supplemental response on April 30, 1998.

c. Conclusions.

Quality assurance activities were being conducted as required by procedures. Identification of adverse conditions continued to be a strength. PNSC discussions were focussed on safety. However, PNSC review of the required response to violation 50-400/98-01, example 1, for chart recorders, was not adequately focussed on ensuring that the violation response addressed the root cause of inadequate corrective actions. This deficiency resulted in the NRC requesting an additional response.

08 Miscellaneous Operations Issues (92700, 92901)

- 08.1 (Closed) Violation 50-400/97-12-01: PNSC meeting without required quorum membership. Inspection Report 50-400/97-12 did not require a response from the licensee. A new membership quorum designation letter was reviewed during that inspection and was found to be adequate.

Procedure AP-13, Plant Nuclear Safety Committee, was revised as described in the inspection report. The inspectors reviewed these changes and attended PNSC meetings and found the corrective actions adequate. This item is closed.

- 08.2 (Closed) Violation 50-400/97-12-02: PNSC membership appointment not designated a quality assurance record. Inspection Report 50-400/97-12 did not require a response from the licensee. The report identified that the records were retrievable but not designated as quality assurance (QA) records. The report identified that the records were being retransmitted and reclassified as QA record type T0765. The licensee also performed a review of other statements in TS, Section 6, and found two other memorandums that were being stored as correspondence (like the PNSC membership appointment) instead of as QA records. The inspectors verified that the corrective actions were completed and that the problem was corrected. The inspectors reviewed the documents that established the new record type, T0951 and T0952, for the two additional types of memorandums (delegation of duties memorandums per TS 6.1.1 and 6.1.2). The inspectors also reviewed transmittal numbers 29180 and 29186, which transmitted the records as the 0951 and 0952 record types. This item is closed.
- 08.3 (Closed) LER 50-400/97-023-00: Reactor coolant system pressure isolation valve testing deficiency (OST 1506). This event occurred as a result of a nonconservative leak rate calculation used to support surveillance test result evaluation. The calculation did not consider flow loss and static head loss in determining results. The nonconservative calculation resulted in the leak rate for valve 1SI-346, low head injection 10-inch check valve, exceeding the TS Table 3.4-1 acceptance criteria of 5 gallons per minute during a test performed July 21, 1992. This was a violation of TS 3.4.6.2, action c for not isolating the low pressure portion of the system from the high pressure portion within 4 hours. The licensee subsequently evaluated other surveillance procedures/calculations for this same error. No other examples of this error were found. The corrective action was to revise the test procedure. The inspectors verified that procedure OST 1506, Reactor Coolant System Isolation Valve Leak Test, Revision 6, contained the appropriate changes. This non-repetitive, licensee-identified and corrected violation is being treated as a non-cited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy. This item is designated NCV 50-400/98-04-02, Reactor Coolant System Pressure Isolation Valve Testing Deficiency. This item is closed.
- 08.4 (Open) LER 50-400/98-005-00: Technical Specification verbatim non-compliance. This LER was initiated to report the results of the following three recent closely-related root cause investigations where violations of the TS were found:
- One investigation was initiated in response to a comment in the February 24, 1998, SALP report for the Harris Nuclear Plant which included a statement regarding "the lack of clear understanding of some Technical Specification requirements".



- The second investigation was initiated after Operations personnel noted that the guidance in Technical Specification Interpretation (TSI) 89-003 apparently was not consistent with TS 3.8.1.1.b.4. This investigation was initiated to resolve that issue, and to determine whether the guidance in other TSIs was inconsistent with the corresponding TS.
- The third investigation was initiated after an inspector questioned the licensee about completing surveillance testing during shutdown periods, as described in section M7.1. The investigation was initiated to address the inspector's question.

The LER adequately described the reported violations. However, the LER also noted that to identify past TS violations, the licensee investigators reviewed historical plant data and records going back only one year, or until a violation was identified, whichever was less. The inspectors concluded that other examples of the violations may have occurred, but would not have been identified by the investigators.

The LER identified eight instances in which the licensee did not comply with the literal meaning of various TSs in a verbatim manner, four instances in which the licensee failed to comply with TS requirements to perform certain surveillance testing "during shutdown", and five approved TSIs which contradict the literal meaning of TS requirements. Section M7.1 discusses the surveillance testing required during shutdown conditions.

This LER will remain open pending further licensee review and subsequent verification of corrective actions.

- 08.5 (Open) LER 50-400/98-002-01: Solid state protection system (P-11 Permissive) testing deficiency. This LER was initiated because the licensee determined that Westinghouse Nuclear Safety Advisory Letter (NSAL) 97-011 was applicable to the Harris Nuclear Plant Solid State Protection System (SSPS). This NSAL notified the industry that the current SSPS design did not allow for complete overlap testing of the P-11 (Pressurizer Low Pressure) permissive function at power.

This LER will remain open pending further review and subsequent verification of corrective actions.

- 08.6 (Closed) LER 50-400/98-003-00: Failure to perform shutdown margin calculation required by TS surveillance requirements. This LER was initiated because on January 29, 1998, with the plant operating at approximately 100 percent power and while the shutdown bank "C" control rods were inoperable due to maintenance, the licensee failed to perform a shutdown margin calculation within one hour, as required by TS 4.1.1.1.1.a. When the control rods became inoperable due to being placed on a DC hold bus, the operations shift crew in the control room determined that the action statement for TS 3.1.3.1, "Movable Control Assemblies - Group Height" must be entered, but failed to recognize that a surveillance requirement for TS 3.1.1.1 "Shutdown Margin - Modes 1 and



2". must also be completed. However, during the subsequent shift turnover, an oncoming shift crew member noted that the surveillance requirement had not been completed, and initiated action to complete it. The TS requirement was completed in 1 hour and 19 minutes after the control rods became inoperable.

The LER states that corrective actions for this issue included revising several procedures to clarify shutdown margin calculation requirements, and providing real-time training to available licensed operators. This item was the subject of violation 50-400/98-01-03 and corrective actions will be reviewed through that item. This item is administratively closed.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments

a. Inspection Scope (62707)

The inspectors observed all or portions of the following work activities:

- WR/JO 98-ACJK1 Perform Annual Inspections of Spent Fuel Cask IF-304 and Associated Railcar Equipment
- WR/JO ADLK 002 Limitorque Actuator Inspection and Lubrication
- WR/JO AFQH 008 Air Control Fan and Motor Inspection and Lubrication
- WR/JO AIUM 013 Air Filter Inspection and Replacement at Turbine Building Decontamination Facility Fan Air Handling Unit
- WR/JO AGIX 008 Inspection and Cleaning of Recorders
- WR/JO 98-ABUX1 Limitorque Switch Adjustment and Stroking

b. Observations and Findings

The inspectors found that the work was performed in a professional and thorough manner. All observed work was performed with the work packages present and in active use. Technicians were experienced and knowledgeable regarding their assigned tasks. The inspectors frequently observed supervisors and system engineers monitoring job progress, and quality control personnel were present whenever required by procedures. Peer-checking and self checking techniques were utilized. When needed, appropriate radiation control measures were put in place.



WR/JO 98-ACJK1 was performed using the Corrective Maintenance Procedure CM-M0303, "Cask and Equipment Skid Annual Inspection (IF-300 Series)," Revision 12. The inspectors observed some of the fuel basket installation, cask closure head installation, and head bolt tensioning that were performed in accordance with sections 7.14 to 7.16 of the procedure.

During the observation of the cask head bolt tensioning, the inspectors observed that the licensee used the next higher torque settings to depress and reduce the larger gaps for parallelism on certain bolts before starting the next torque cycle, instead of loosening the nuts at the smaller gaps. The process to achieve parallelism utilized by the licensee is not specifically stated in the procedure. The normal torque processes required in the procedure are:

- Apply 100 foot-pounds (ft-lb) torque for the first complete cycle. Recheck parallelism. Loosen/tighten as necessary to adjust.
- Apply 300 ft-lb torque for a second complete cycle. Recheck parallelism. Loosen/tighten as necessary to adjust.
- Apply 700 ft-lb torque until the closure head is within 0.010 to 0.030 inch of metal-to metal contact with the cask body. Recheck parallelism every three or four cycles and adjust, if necessary.
- A note describes that care must be taken to reduce the gap evenly so that the surfaces remain parallel to avoid cocking the closure head.

The licensee's practice was to apply 100 ft-lb torque uniformly to all the bolts, then use a torque setting of 300 ft-lb to depress the bolts with the larger gaps for parallelism before applying a torque of 300 ft-lb uniformly to all the bolts for the second run. Similarly, a torque setting of 700 ft-lb was then used to achieve parallelism. Although this may be acceptable, the inspectors questioned what the intent was and whether it agreed with vendor recommendations.

The engineers stated that this process (of using the next higher torque values) for parallelism was allowed, was used during the practice demonstration performed by the vendor, and was stated in the vendor's operational manual. However, the vendor's manual did not state that this process could be used. The licensee issued CR 98-01126 to resolve this issue. The licensee contacted the vendor and obtained written concurrence from the vendor that the current method was acceptable and to allow use of a torque up to 1000 ft-lb for parallelism. The inspectors reviewed the response and considered the process used for the parallelism to be acceptable based on the vendor's explanation contained in the written response. The licensee revised the procedure to allow a torque up to 1000 ft-lb to be used for the parallelism as permitted in the vendor response.



The inspectors also reviewed the maintenance records for the fuel cask and fuel handling building (FHB) auxiliary cranes and the training records for two crane operators who operated the crane during the lifting and moving of the cask and its associated components. The maintenance and training records were adequate.

WR/JO 98-ABUX1 was issued to adjust a limitorque switch to prevent remote position indication failures due to seat hardening. The switch had slower responses than required, which necessitated the adjustment. The maintenance technician adjusted the switch to fall within the allowable ranges for correct stroking. The operator successfully performed operations surveillance test, OST-1215, Emergency Service Water System Operability, for this valve (1SW-225.002) following the switch adjustment. This surveillance was required in the work order (WO) as part of the post-maintenance test requirements. The inspectors reviewed the test results and were satisfied that the switch was adjusted adequately and could perform its intended function.

c. Conclusions

The six maintenance activities observed were being conducted with work packages present and in active use and the technicians were experienced and knowledgeable.

M2 Maintenance and Material Condition of Facilities and Equipment

M2.1 Surveillance Observation

a. Inspection Scope (61726)

The inspectors observed all or portions of the following surveillance tests:

- MST-I0247 Metal Impact Monitoring System Operational Test
- CL-I0029 Inspect and Adjust I/P Converter for FCV-1255A
- MST-I0153 Reactor Coolant Loop 1 Flow Instrument (F-0415) Protection Set II Operational Test
- MST-I0156 Reactor Coolant Loop 2 Flow Instrument (F-0425) Protection Set II Operational Test
- MST-I0159 Reactor Coolant Loop 3 Flow Instrument (F-0435) Protection Set II Operational Test
- EST-220 Type C LLRT of containment Purge Exhaust Penetration (M-58)
- FPT-3001 Motor Driven Main Fire Pump Operability Test
- FPT-3010 Diesel Engine Driven Main Fire Pump Operability Test



- MST-I0128 Main Steam Line Loop 2 Protection Set II Testing
- LP-F-0156A Reactor Coolant Pump 1A Flow Transmitter Calibration
- PIC-I105 Time Delay Relay 62-2/2703 Calibration
- PIC-I105 Time Delay Relay 62-1/2703 Calibration
- PIC-I105 Time Delay Relay 62-2/2709 Calibration

b. Observations and Findings

The inspectors found that the test equipment was properly calibrated, test procedures were followed, and testing was performed satisfactorily. The inspectors observed that the technicians received permission from the shift operations supervisor to commence each surveillance, identified the components to be surveillance tested, turned off electricity as required, performed the tests, asked a second person for an independent verification if required, recorded the results, restored the electricity, and removed the test equipment. Technicians who performed the work were experienced, skillful, and knowledgeable.

c. Conclusions

Thirteen surveillances were adequately conducted. Maintenance and operations personnel performing the surveillances were skillful and knowledgeable.

M7 Quality Assurance in Maintenance Activities

M7.1 Completion of Surveillance Tests

a. Inspection Scope (61726)

The inspectors reviewed selected records of tests that were conducted to satisfy TS surveillance requirements. The inspectors also reviewed whether the test were conducted in the required operating mode. The inspectors identified the procedures which were used to satisfy those surveillances, examined plant records to determine when those procedures had been completed, and compared those completion dates to shutdown dates.

b. Observations and Findings

The inspectors noted that TS 4.7.3.b.3 requires that CCW flow paths be demonstrated operable at least once per 18 months during shutdown, by verifying that each automatic valve serving the gross failed fuel detector actuates to its correct position on a low surge tank level test signal. The inspectors determined that according to document MS-970171, Revised Surveillance Test/Technical Specifications Cross Reference, TS 4.7.3.b.3 was satisfied by procedures MST-I0178, Component Cooling Surge Tank - Tank 1 (L-0670) Calibration and MST-I0179, Component Cooling

Surge Tank - Tank 2 (L-0676) Calibration. The inspectors examined records and found that since January 1, 1994, both MST-I0178 and MST-I0179 had been completed five times. However, by comparing the procedure completion dates with shutdown dates, the inspectors determined that during this period, MST-I0178 was completed during shutdown only once, on September 6, 1996. Similarly, the inspectors determined that during this period, MST-I0179 had also been completed during shutdown only once, on May 22, 1997. The failure to consistently complete these procedures at least once per 18 months, during shutdown was contrary to TS 4.7.3.b.3. The licensee initiated condition report 98-01044 to address this issue and review other similar TSs for generic considerations.

On May 20, 1998, the licensee reported their initial findings in LER 50-400/98-005-00. The LER (see Section 08.4) reported that three other surveillance tests were performed at power instead of at shutdown, as required by the TSs:

- TS 4.8.1.1.2.f.5 required testing to be performed at least once per 18 months during shutdown to verify that both emergency diesel generators start on a safety injection test signal and operate in standby for five minutes. Testing had been normally performed during each of the refueling outages prior to RF06. However, the licensee failed to perform that testing during RF06. Instead, it was performed on August 30, 1995, just prior to RF06.
- TS 4.7.1.2.1.b.1 required testing to be performed at least once per 18 months during shutdown to verify that the auxiliary feedwater (AFW) pressure control valves (PCVs) respond as required. Testing had been performed to satisfy this requirement during refueling outages (RFOs) 1, 2, 3, and 4. However, the licensee failed to perform testing to satisfy this requirement during RFOs 5, 6, and 7.
- TS 4.7.4.b.1 required testing to be performed at least once per 18 months during shutdown to verify the operability of emergency service water valve 3SC-41 (screen wash isolation valve). This testing was routinely performed at power while in mode 1, rather than during shutdown since initial startup.

The licensee's root cause investigation was issued on May 26, 1998, after the end of the inspection period. This issue is considered unresolved pending NRC review of the root cause investigation, the assessment of the relation of this issue to the multiple other issues reported in the LER, and the subsequent determination of safety and regulatory significance. This unresolved item is designated 50-400/98-04-03, Technical Specification Literal Compliance.

The licensee submitted a technical specification change request on March 17, 1997 to delete specific restrictions from TS 4.1.2.2.c, 4.5.2.e, 4.6.2.1.c, 4.6.2.2.c, 4.6.3.2, 4.7.1.2.1.b, 4.7.3.b, and

4.7.4.b, which require the surveillance tests to be accomplished while the unit is shutdown. The licensee requested that NRC expedite approval of the change after the inspector's finding. Approval was received on April 14, 1998.

c. Conclusions

An unresolved item was opened in relation to technical specification surveillance requirements that were required to be accomplished at shutdown and were being conducted at power. One example was identified in relation to testing of the gross failed fuel detector CCW isolation valves on low surge tank level. The licensee had identified three others by the end of the period as reported in LER 50-400/98-005.

III. Engineering

E1 Conduct of Engineering

E1.1 Engineering Service Requests

a. Inspection Scope (37551)

The inspectors reviewed ESR 9800158.R0, "Operability Evaluation for Valve 1RC-905," to determine if procedure NGR-NGGC-005, Engineering Service Requests (ESR), Revision 5, was being followed.

b. Observations and Findings

Valve 1RC-905 was the combined reactor vessel head and pressurizer steam space vent valve. The valve had been declared inoperable on May 28, 1997, due to the valve having dual indication when opened during the performance of surveillance test procedure OST-1043, Reactor Coolant System Vent Path Quarterly Interval. The need to perform an operability evaluation on April 8, 1998, was due to a problem with TSI 89-003, and that the head vent valve was considered a redundant required feature in relation to TS 3.8.1.1 for loss of a diesel generator or off-site power circuit (see also Section 08.4). Consequently, when the opposite train diesel generator was out-of-service, the action statement for TS 3.8.1.1 required the redundant required feature (in this case the head vent valve) be restored to operable in 4 hours or declare the redundant required feature powered from the inoperable A.C. source as inoperable and be in at least Hot Standby within the next 6 hours. This was more restrictive than TS 3.4.11, which allowed a 72-hour action time with both trains of head vents inoperable.

The inspectors found that the operability evaluation was adequately performed in accordance with the procedure. The inspectors also found that the operability evaluation could have been performed shortly after the condition was found in May 1997, which would have eliminated operators having to work around the inoperability of valve 1RC-905. The inspectors observed that plant management had been willing to live with the inoperable valve until it was discovered that the head vent valve

would cause a shorter action statement time than was originally thought under certain conditions. The shorter time could have potentially caused an unnecessary plant shutdown.

c. Conclusions

An operability evaluation for reactor head vent valve 1RC-905 was conducted in accordance with required procedures. However, it was not performed until approximately 8 months after the condition occurred due to management willingness to live with the out-of-service condition. This condition constituted an unnecessary operational burden on plant operators.

E7 Quality Assurance in Engineering Activities

E7.1 Special Final Safety Analysis Report (FSAR) Review (37551)

A recent discovery of a licensee operating their facility in a manner contrary to the Updated Final Safety Analysis Report (UFSAR) description highlighted the need for a special focused review that compares plant practices, procedures and/or parameters to the FSAR descriptions. While performing the inspections discussed in this report, the inspectors reviewed the applicable portions of the FSAR that related to the areas inspected. The inspectors did not find any discrepancies other than those identified by the licensee.

E7.2 Harris Energy and Environmental Center Quality Assurance Procedures

a. Inspection Scope (37551)

The inspectors reviewed the licensee's activities related to Nuclear Assessment Section (NAS) report H-MC-98-01, Harris Material Control Assessment.

b. Observations and Findings

NAS conducted an assessment to evaluate Material and Contract Services activities at Harris. This assessment included Materials and Contract Services onsite activities and activities performed by the Harris Energy and Environmental Center (HEEC). The NAS assessment concluded that the Metallurgical Services and Analytical Chemistry Laboratory's procedures that support activities affecting quality do not meet the Corporate Quality Assurance (QA) Program Manual requirements which implement 10 CFR 50 Appendix B. The NAS assessment identified problems with procedures for: procurement, receipt inspection, calibration, QA records control, and procedure format. The licensee opened significant condition report (CR) 98-01075-1 for the issue and initiated technical and compliance reviews of the affected work groups. The root cause was determined to be due to inadequate change management during organizational changes.

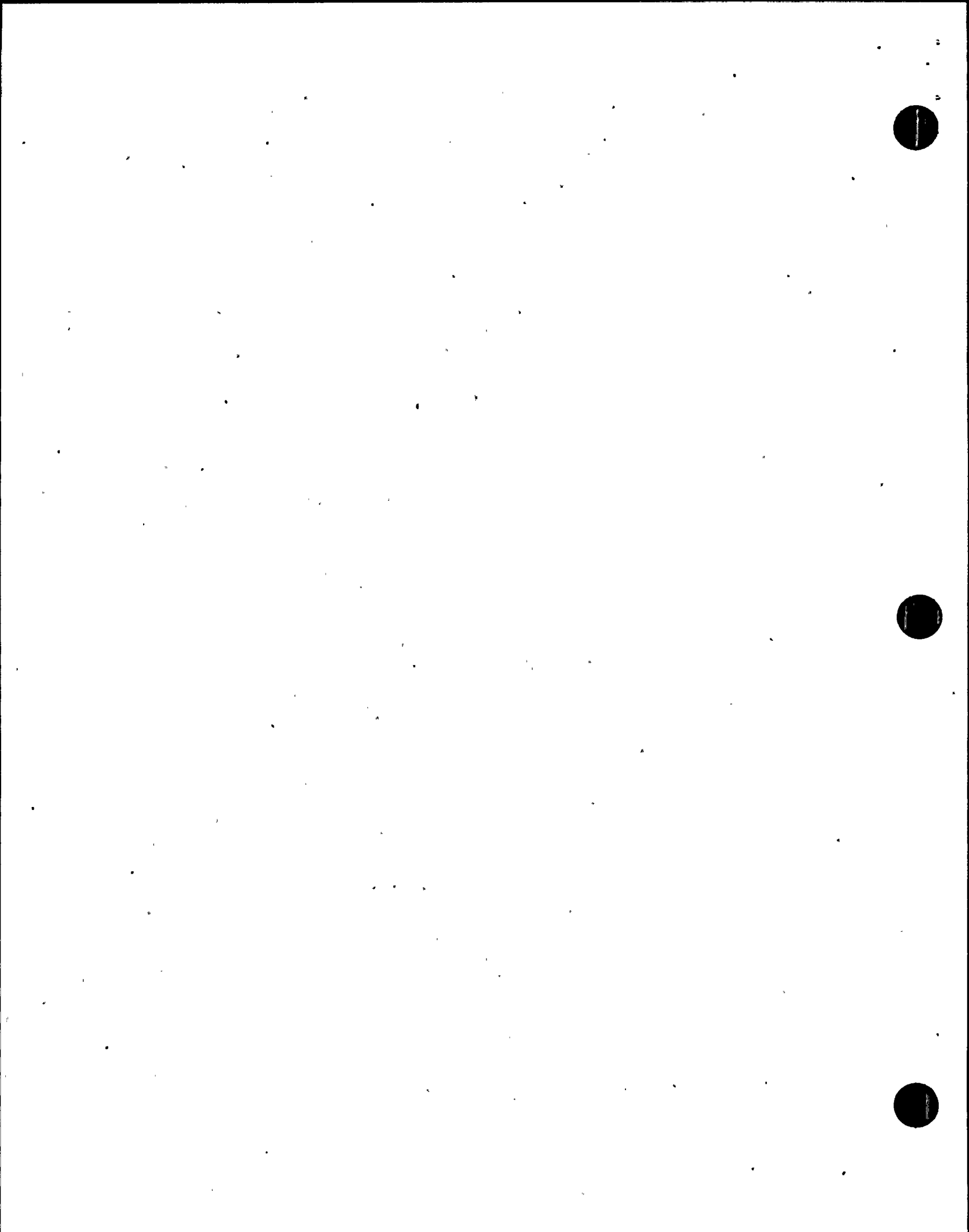
NAS required prompt corrective action by management to address this issue but did not require a stop work for either affected work unit. Management took action to treat both work units as unqualified suppliers using qualified source surveillance personnel from the Procurement, Dedication, and Vendor/Equipment Services Group to perform source surveillance control on activities affecting quality while the work units implemented actions to correct the identified problems.

A technical review team was formed to evaluate the extent of the problem and to determine if the inadequate QA procedures issue had resulted in any operability concerns. The inspectors reviewed the NAS report, CR 98-01075-1, and discussed the issue with licensee HEEC and NAS personnel. Metallurgical and Analytical Chemistry Laboratory project logs and databases were examined and the inspectors verified that these work units maintained unique project identifiers and records to support assessment of completed work. The technical review team concluded that the completed chemistry and metallurgical work met the technical requirements for safety related work and correctly represented the technical condition of each part tested. From April 16, 1998, through April 29, 1998, the source surveillance reviewers observed 29 tests/analyses performed HEEC Metallurgical/Analytical personnel and no technical concerns or issues were identified. The inspector observed testing performed on O-rings for dedication activities and noted no problems.

The inspectors identified that NAS had performed the last assessment of the HEEC in November, 1993. The licensee initiated CR 98-01087 to address the lack of sufficient program oversight. A corporate Performance Evaluation Section (PES) assessment was initiated to determine if other work groups performing safety related activities were not being periodically assessed by NAS to ensure that their activities met QA program requirements. Further review of the root cause and corrective actions for the issue is required to disposition this issue and to incorporate the results of the corporate PES review. This issue is identified as Unresolved Item (URI) 50-400/98-04-04, HEEC Metallurgical/Analytical Chemistry Laboratory QA Procedures.

c. Conclusions

The licensee's corrective actions in response to a Nuclear Assessment Section issue which identified that the Harris Energy and Environmental Center Metallurgical and Analytical Chemistry Laboratory group activities were not adequately controlled by quality assurance procedures were prompt and comprehensive. An unresolved item was opened for further review of the licensee's ongoing assessment to determine if other work units performing safety related activities have not had proper Quality Assurance oversight.



E8 Miscellaneous Engineering Issues (92700)

- E8.1 (Open) LER 50-400/98-004-00: Design deficiency related to inadequate runout protection for the turbine driven AFW pump. This LER was initiated on March 13, 1998, because the licensee discovered a design deficiency related to the turbine driven auxiliary feedwater pump (TDAFWP). During the plant's response to a postulated main steam line break (MSLB) or main feed line break (MFLB) accident, the design of the TDAFWP controls would not prevent the pump from accelerating to a runout condition. The operability evaluation for this deficiency (ESR 98-00100) assumed that the TDAFWP would fail as a result of operating in a runout condition, and determined that the failure of the TDAFWP during either an MSLB or an MFLB would not prevent the auxiliary feedwater system from performing its intended safety functions during those accidents. The evaluation therefore concluded that the noted design deficiency did not render the TDAFWP inoperable.

The inspectors found that the operability evaluation was completed in a timely manner, and that it correctly identified the safety functions of the AFW system during the MSLB and MFLB accidents and developed reasonable and appropriate support for its conclusions based on descriptions in the Final Safety Analysis Report.

The LER stated that additional Engineering analyses would be performed to determine the appropriate long-term solution to this issue, and that a supplement to this LER would be issued upon completion of these analyses. The LER will remain open pending review of those analyses, and completion of any subsequent corrective actions.

IV. Plant Support

R1 Radiological Protection and Chemistry (RP&C) Controls

R1.1 General Comments (71750)

The inspectors observed radiological controls during the conduct of tours and observation of maintenance activities. The inspectors found radiological controls to be in accordance with required procedures. The general approach to the control of contamination and dose for the site was good. Teamwork between the various departments continued to be a major contributor to the effective control of dose.

The inspectors also reviewed the operability, testing, and calibration of the plant's continuous air monitors. The plant's testing of these monitors satisfied the specifications set forth in the Final Safety Analysis Report and no problems were noted with regard to equipment operability. One increase in reactor auxiliary building particulate radioactivity noted by the inspectors on CAM strip charts was determined to be caused by shifts in building ventilation flowpaths.

S1 Conduct of Security and Safeguards Activities

S1.1 General Comments (71750)

The inspectors observed security and safeguards activities during the conduct of tours and observation of maintenance activities. Compensatory measures were posted when necessary and properly conducted.

F1 Control of Fire Protection Activities

F1.1 General Comments (71750)

The inspectors observed fire protection equipment and activities during the conduct of tours and observation of maintenance activities. The inspectors found the fire protection activities to be acceptable.

F1.2 Indications of Smoke Inside the Reactor Auxiliary Building (RAB)

a. Inspection Scope (71750, 71707)

The inspectors observed the licensee's response to an indication of smoke inside the RAB.

b. Observations and Findings

On May 12, 1998, the unit was operating at approximately 100 percent power. At 4:38 pm, an announcement was made for the fire brigade to respond to the south side of the 216 foot elevation. The inspectors observed coordination activities in the control room. Announcements were made for nonessential personnel to evacuate the affected area. After investigation by the fire brigade, an acrid odor was detected but no evidence of fire was located. As a precaution, the licensee continued to restrict access while members of the brigade investigated other elevations of the RAB. Coordination and communication by the fire brigade was satisfactory. In addition, the inspectors observed Operations personnel accessing the fire protection preplan to determine the equipment in the affected area. Access was restored approximately an hour after the fire brigade was called out. The licensee was unable to determine the cause of the acrid odor. The inspectors reviewed fire protection procedure FPP-002, Fire Emergency, Revision 13. The inspectors concluded that the actions taken by the licensee were satisfactory and implemented in accordance with plant procedure.

c. Conclusion

Response to an indication of smoke in a safety-related area was satisfactory and performed in accordance with procedure. Appropriate actions were taken to confirm that no hazard existed before restoration of access to the affected area.



V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on May 28, 1998. The licensee acknowledged the findings presented.

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

PARTIAL LIST OF PERSONS CONTACTED

Licensee

D. Batton, Superintendent, On-Line Scheduling
D. Braund, Superintendent, Security
B. Clark, General Manager, Harris Plant
A. Cockerill, Superintendent, I&C Electrical Systems
J. Collins, Manager, Maintenance
J. Cook, Manager, Outage and Scheduling
J. Donahue, Director Site Operations, Harris Plant
J. Eads, Supervisor, Licensing and Regulatory Programs
W. Gurganious, Superintendent, Environmental and Chemistry
M. Keef, Manager, Training
G. Kline, Manager, Harris Engineering Support Services
R. Moore, Manager, Operations
K. Neuschaefer, Superintendent, Radiation Protection
W. Peavyhouse, Superintendent, Design Control
W. Robinson, Vice President, Harris Plant
S. Sewell, Superintendent, Mechanical Systems
D. Tibbitts, Manager, Nuclear Assessment
C. VanDenburgh, Manager, Regulatory Affairs

NRC

S. Flanders, Harris Project Manager, NRR
M. Shymlock, Chief, Reactor Projects Branch 4



INSPECTION PROCEDURES USED

IP 37551: Onsite Engineering
 IP 40500: Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems
 IP 61726: Surveillance Observations
 IP 62707: Maintenance Observation
 IP 71707: Plant Operations
 IP 71750: Plant Support Activities
 IP 92700: Onsite Followup of Events
 IP 92901: Followup - Plant Operations

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-400/98-04-01 VIO Clearance tag not hung (Section 02.1).
 50-400/98-04-02 NCV Reactor coolant system pressure isolation valve testing deficiency (Section 08.3).
 50-400/98-04-03 URI Technical Specification literal compliance (Section M7.1).
 50-400/98-04-04 URI HEEC Metallurgical/Analytical Chemistry Laboratory QA Procedures. (Section E7.2).

Closed

50-400/98-04-02 NCV Reactor coolant system pressure isolation valve testing deficiency (Section 08.3).
 50-400/97-12-01 VIO PNSC meeting without required quorum membership (Section 08.1).
 50-400/97-12-02 VIO PNSC membership appointment not designated a quality assurance record (Section 08.2).
 50-400/97-023-00 LER Reactor coolant system pressure isolation valve testing deficiency (Section 08.3).
 50-400/98-003-00 LER Failure to perform shutdown margin calculation required by Technical Specification surveillance requirements (Section 08.6).

Discussed

50-400/98-005-00 LER Technical Specification verbatim non-compliance (Section 08.4).
 50-400/98-002-01 LER Solid state protection system (P-11 Permissive) testing deficiency (Section 08.5).
 50-400/98-004-00 LER Design deficiency related to inadequate runout protection for the turbine driven AFW pump (Section E8.1).

