

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

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

Report No: 50-400/99-01

Licensee: Carolina Power & Light (CP&L)

Facility: Shearon Harris Nuclear Power Plant, Unit 1

Location: 5413 Shearon Harris Road
New Hill, NC 27562

Dates: January 31, 1999 - March 13, 1999

Inspectors: J. Brady, Senior Resident Inspector
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Approved by: B. Bonser, Chief, Projects Branch 4
Division of Reactor Projects

Enclosure

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Report Details

Summary of Plant Status

Unit 1 began this inspection period at 100 percent power. On February 17, following unsuccessful completion of a scheduled surveillance test on a reactor trip breaker, power was reduced to 7 percent before completion of an engineering assessment which concluded that the subject trip breaker was operable. The unit was restored to full power on February 18. On March 7, the unit was shut down to enable repair of an emergent problem concerning steam generator blowdown valves. After those valves were repaired, the unit returned to 100 percent power on March 9. Power remained at 100 percent until March 12, when an automatic reactor trip occurred following a turbine trip due to high-high water level in one steam generator. The unit remained shutdown through the end of this inspection period.

I. Operations

O1 Conduct of Operations

O1.1 General Comments (71707)

The inspectors conducted frequent reviews of on-going plant operations including control room tours, shift turnovers, and observation of operations surveillance activities.

The inspectors conducted periodic reviews of operations logs and procedure usage, and found that logs were being maintained and procedures were being used in accordance with approved procedures and applicable policies. 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. The conduct of operations was in accordance with applicable procedures.

O1.2 The February 17 Downpower Evolution

a. Inspection Scope (93702)

The inspectors reviewed the licensee's actions before, during, and following a February 17 downpower evolution, to determine whether applicable licensee procedures were followed and related license conditions were satisfied.

b. Observations and Findings

The inspectors found that on February 17, the licensee initiated a controlled shutdown of the unit. The shutdown had been initiated as required by action statement 8 in Technical Specification (TS) 3.3.1, following unsatisfactory completion of procedure MST-10001, "Train A Solid State Protection System Actuation Logic & Master Relay

Test," Revision 19. The inspectors noted that the licensee was using MST-10001 to satisfy the TS 3.3.1 requirement to periodically demonstrate the operability of the reactor trip breakers. According to CR 99-00471, during the subject test, reactor trip breaker "A" successfully tripped as required, but failed to properly close when the "push to close" pushbutton was depressed the first time after the breaker had tripped. (The breaker did close the second time the pushbutton was depressed.) Because the breaker did not perform as required, the licensee declared the test unsatisfactory, and entered the associated action statement, which required the plant to be in hot standby conditions within six hours.

The inspectors noted that the controlled shutdown was initiated approximately three hours before the end of that 6-hour period associated with action statement 8 in TS 3.3.1. The inspectors considered that the licensee's response to the failed surveillance test was both conservative and timely.

The inspectors observed that the licensee subsequently addressed this issue in a manner consistent with Generic Letter 91-18, "Resolution of Degraded and Nonconforming Conditions." The inspectors found that in addition to initiating a controlled shutdown of the plant, the licensee initiated troubleshooting activities and completed an engineering evaluation of breaker operability, as described in Section E1.1 of this report. The inspectors noted that after the engineering evaluation determined that the trip breaker was degraded but operable, the licensee appropriately terminated the controlled shutdown with reactor power at 7 percent of full power, and initiated a return to full power.

c. Conclusions

In response to a failed reactor trip breaker surveillance test, the licensee made conservative, timely, and appropriate operational decisions, and addressed the test failure in a manner consistent with Generic Letter 91-18.

O1.3 The March 7 Downpower Evolution

a. Inspection Scope (93702, 92700)

The inspectors reviewed the licensee's actions before, during, and following a March 7 downpower evolution, to determine whether applicable licensee procedures were followed and related license conditions were satisfied.

b. Observations and Findings

The inspectors noted that on March 5, one of the two valves which enable blowdown flow from the "B" steam generator failed closed. On March 7, the licensee informed the inspectors that the other blowdown valve associated with that steam generator had also failed closed, and that a planned shutdown was underway to enable repair of those valves and subsequent restoration of blowdown flow. The licensee reduced reactor power to 3 percent, steaming through the steam-dump system to the main condenser, while efforts were underway to repair the blowdown valves.



The inspectors noted that with no blowdown flow, steam generator water chemistry would degrade to exceed limits contained within approved plant procedures. The inspectors observed that the licensee initiated this shutdown before significant degradation had occurred, well before those limits were exceeded.

The inspectors observed that the licensee took appropriate action to diagnose the causes of the valves' failures, and to restore the valves to operation. (Both of the valves were air-operated; one failed due to a failed diaphragm, and the other failed due to a failed pneumatic controller.) The inspectors noted that the licensee subsequently returned the unit to full power early in the morning of March 9.

During this evolution, the inspectors observed no violations of regulatory requirements, and identified no related concerns.

c. Conclusions

On March 7, a unit downpower was required to enable repair of two blowdown valves. The downpower evolution and the subsequent return to full power were accomplished in accordance with approved procedures.

O1.4 The March 12 Reactor Trip

a. Inspection Scope (93702, 92700)

The inspectors reviewed the licensee's actions before, during, and following the March 12 reactor trip, to determine whether applicable licensee procedures were followed and related license conditions were satisfied.

b. Observations and Findings

On March 12, the unit experienced an automatic reactor trip due to a turbine trip. The turbine trip was caused by high-high water level in the "C" steam generator. Preliminary information suggested that high-high water level was caused by a malfunction of the controller on the "C" feedwater regulating valve (FRV).

The inspectors observed that, in response to this automatic trip, the licensee promptly stabilized the plant in accordance with appropriate emergency operating procedures. The inspectors also observed that the licensee aggressively initiated actions to determine not only the root cause of the trip, but also the reasons why some non-safety-related equipment had not performed as expected. Those actions included establishing teams to complete the following tasks:

- Complete a Post-Trip Safeguards Actuation Report in accordance with OMM-004, "Post-trip/Safeguards Actuation Review," Revision 10.
- Complete a root-cause investigation of the reactor trip in accordance with AP-605, "Condition Report Investigations," Revision 17.

- Investigate the operation of the "C" FRV; if the valve was not operating properly, identify the cause(s) of the problem(s) and recommend appropriate corrective actions.
- Determine whether the feedwater and condensate systems responded to the trip transient properly; if not, identify the cause(s) of the problem(s) and recommend appropriate corrective actions.
- Determine why the control-room operators did not manually trip the reactor before a process parameter reached a trip setpoint, and recommend actions to prevent recurrence.

The inspectors observed that the licensee reported the reactor trip in accordance with 10 CFR 50.72.

At the end of this inspection period, the licensee had not completed the investigations described above. The unit remained shutdown, with the reactor in Mode 3 (subcritical core, average coolant temperature >350°F). The licensee's response to and recovery from the reactor trip will be addressed in the next inspection report (NRC IR 50-400/99-02).

c. Conclusions

On March 12, the unit experienced an automatic reactor trip following a turbine trip due to high-high steam generator water level. The licensee responded well to the trip, and promptly stabilized the plant in Mode 3. At the end of the inspection period, the licensee was aggressively investigating the cause of the trip and several related issues.

O2 Operational Status of Facilities and Equipment

O2.1 General Comments (71707)

The inspectors conducted frequent tours of the facility to verify equipment condition, housekeeping, and proper use of clearances. The inspectors found that facilities and equipment were maintained and clearances were installed and removed in accordance with applicable procedures.

O2.2 Engineered Safety Feature System Walkdowns

a. Inspection Scope (71707)

The inspectors walked down accessible portions of the non-Emergency Diesel Generator (EDG) 6.9 kilovolt (kv) AC electrical system to determine whether:

- the equipment was aligned to support TS operability
- the system was installed consistent with the FSAR description
- the operating procedures were adequate to support operation of the system

- the as-constructed system was consistent with the FSAR, system description, design basis document, and 10 CFR 50 Appendix A.

b. Observations and Findings

This 6.9kv electrical system was part of the overall non-EDG electrical system which among all plant systems was ranked third in risk-reduction worth. Equipment operability, material condition, and housekeeping were acceptable in all cases. The system matched the configuration and description in the FSAR, design basis document, and system description. Procedure OP-156.02, "AC Electrical Distribution," Revision 19, was adequate to support operation of the system.

c. Conclusions

The equipment in the 6.9kv electrical system was found to be aligned and operating in accordance with procedures and as described in the FSAR.

O4 Operator Knowledge and Performance

O4.1 General Comments (71707)

Throughout the inspection period, the inspectors observed operator performance in a variety of circumstances. In those circumstances, the inspectors found that both licensed and non-licensed operators participated attentively in pre-job briefs, followed procedural instructions, and used effective place-keeping techniques. The inspectors also observed that the operators effectively used three-way communication techniques. The inspectors concluded that except for some of the circumstances associated with the March 12, reactor trip (Section O1.4), operator knowledge and performance was good.

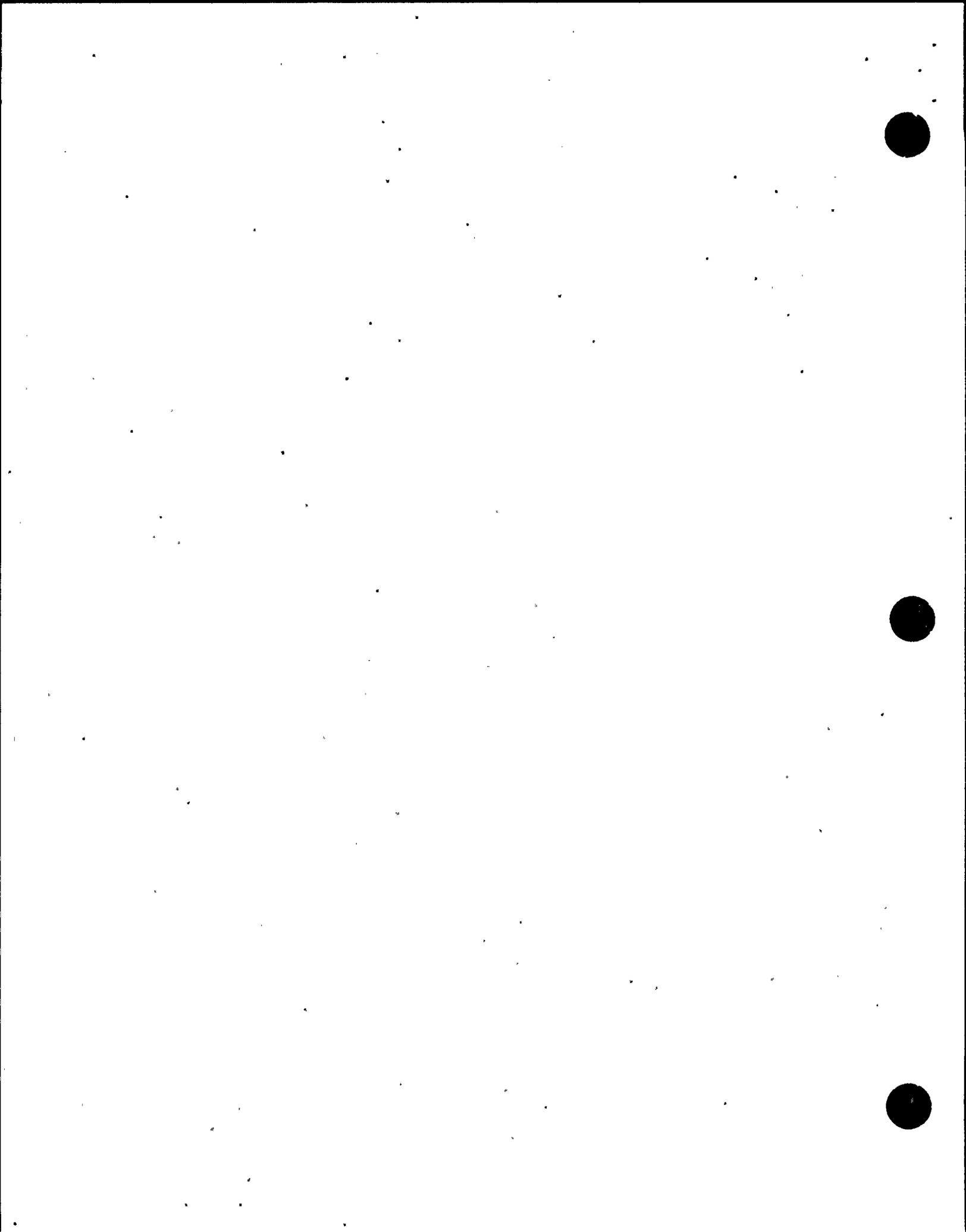
O5 Licensed Operator Requalification Program Evaluation

O5.1 General Comments (71001)

The inspectors conducted a routine, announced inspection of the licensed-operator requalification program during the period February 1-5. Specific areas of review included simulator examinations, Job Performance Measures (JPMs), written examinations, operator remedial training, training feedback program and observation of two requalification training lectures. The inspectors found the requalification program to be satisfactory.

O5.2 Simulator Examinations (71001)

The inspectors reviewed four weeks of simulator scenarios administered during the 1998 annual examinations. The scenarios reviewed adequately tested the operators ability to perform complex tasks using licensee normal, abnormal and emergency



operating procedures. The inspectors concluded that this portion of the licensed-operator requalification program met the requirements of 10 CFR 55.59, "Requalification."

O5.3 Job Performance Measures (71001)

The inspectors reviewed four weeks of JPMs administered during the 1998 annual examinations. The JPMs adequately tested the operators' ability to perform tasks using the licensee procedures. The licensee evaluators satisfactorily documented JPM performance. The inspectors concluded that this portion of the licensed operator requalification program met the requirements of 10 CFR 55.59.

O5.4 Biennial Requalification Written Examination (71001)

a. Inspection Scope

The inspector reviewed the licensee's biennial requalification written examinations administered during May of 1998 to determine if they met the requirements of 10 CFR 55.59, and licensee procedures TPP-306, "Licensed Operator Requalification Program," Revision 6, and TAP-306, "Development and Administration of Licensed Operator Requalification (LOR) Examinations," Revision 4.

b. Observations and Findings

Each of the reactor operator (RO) and senior reactor operator (SRO) examinations consisted of forty questions. Thirty questions were common to both the RO and SRO examinations. The 15 Part A open-reference questions were common to both RO and SRO and of the 25 Part B questions, 20 were common RO/SRO questions with 5 RO-only and 5 SRO-only questions. The inspectors determined that six questions contained psychometric flaws which diminished their effectiveness in evaluating operator knowledge.

The inspectors determined that two questions were "direct look ups" as defined in NUREG-1021, Examiner Standard (ES) - 602, Attachment 1, B.2.e. "Direct look-ups conveys the meaning that little mental activity is involved other than simply copying an answer, readily available in a reference, to a question." Direct look-up questions do not evaluate an operators' understanding of the topic. Three questions had implausible distractors. Distractors are the incorrect responses in a multiple choice test. These distractors could be easily eliminated as a possible answer with little knowledge of the subject matter. Two questions had more than one correct answer, and one of those had four correct answers. In addition, one of the distractors employed the phrase "all of the above." Use of this type of distractor allows the operator to determine if one of the other three is incorrect to eliminate two distractors.

Sample plan development was performed in accordance with plant procedures.

c. Conclusions

Operator requalification written examinations were adequate. The majority of the questions met the guidelines of NUREG-1021 and TAP-306, however, several questions contained flaws that diminished effective evaluation of operator knowledge.

O5.5 Remedial Training and Testing (71001)

a. Inspection Scope

The inspectors reviewed the licensee's licensed operator requalification training records and associated procedures to ensure that an appropriate remedial training program was developed, implemented, and documented as required by 10 CFR 55.59 and TPP-306, "Licensed Operator Requalification Program," Revision 6.

b: Observations and Findings

The inspectors reviewed the documentation associated with two operators who failed the 1998 annual requalification examination, one operator who failed the annual 1998 JPM evaluation, and one crew that failed the 1998 annual simulator examination. The documentation included a training plan which adequately addressed areas identified in need of retraining and a re-evaluation exam. The training plan generically provided areas in need of retraining, however, it did not specifically document the detailed areas necessary for retraining. Operators who failed the annual evaluation were removed from licensed duties until remedial training was accomplished and re-evaluations were performed.

The inspectors reviewed the re-take examinations for the written, JPM and simulator examination failures, and determined that they followed plant procedures. However, during the review of the written re-take examination, the inspectors determined that written re-take examinations contained repeat questions from the original requalification examination. The two individuals' records reviewed included six and four questions repeated on the two re-take examinations, respectfully.

c. Conclusions

Remedial training and evaluations for two failures of written examinations, as required by 10 CFR 55.59 and licensee procedures were properly conducted and documented.

O5.6 Licensee's Training Feedback Program (71001)

The inspectors reviewed the licensee's operator feedback program associated with the 1998 annual examination. Areas reviewed included records and associated procedures to ensure an appropriate feedback program was developed, implemented, and documented. The inspectors concluded that the feedback program met the requirements of 10 CFR 55.59, "Requalification," and TAP-108, "Training Program Evaluation," Revision 5.



O5.7 Training Observation (71001)

The inspectors attended two requalification training lectures on radwaste and a refresher session on Severe Accident Mitigation Guidelines (SAMGs). The inspectors noted that the instructors were well-prepared, utilized good teaching techniques eliciting input from class members, and used learning objectives during and after the presentation. The inspector concluded that these training classes met the requirements of 10 CFR 55.59.

O7 Quality Assurance in Operations

O7.1 General Comments

a. Inspection Scope (71707)

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

- Condition Reports (CRs)
- Plant Nuclear Safety Committee (PNSC) meetings on January 27 and February 4
- Nuclear Safety Review Committee (NSRC) meeting on February 10

b. Observations and Findings

The inspectors observed that PNSC quorum requirements were met, and that for most issues, the PNSC was thorough and asked probing questions. The inspectors also observed that CRs were initiated for all problems and/or issues of which the inspectors were aware. The inspectors observed that the NSRC meeting was attended by appropriate plant management, senior corporate management, and non-CP&L members. The inspectors observed that NSRC members asked probing questions and provided insights based on their varied experience.

While reviewing the Significant Adverse Condition Evaluation report for CR 99-00420, the inspectors observed that reports of investigations of adverse conditions routinely do not document how root causes and contributing causes were identified, and that PNSC members do not question report preparers how the causes were identified. The inspectors considered that without knowledge of how team members determined the cause(s) of an adverse condition, PNSC members could not confirm that the identified causes were both necessary and sufficient to explain the subject adverse condition. Since the corrective actions are based on identified causes, the PNSC could not therefore determine whether the corrective actions would be adequate to correct and/or prevent recurrence of the condition.

c. Conclusions

Safety committee activities were effective.



O8 Miscellaneous Operations Issues (92901, 92700)

- O8.1 (CLOSED) LER 50-400/1999-003-00:** Plant outside the design basis due to isolation of the fire protection containment sprinkler system. This Licensee Event Report (LER) reported that through a series of personnel errors, the containment fire protection sprinkler system was isolated and inadvertently left inoperable for four days beginning on January 23, 1999. This condition was outside the design basis because the plant's safe shutdown analysis credits the containment sprinkler system to provide protection (in lieu of other protection measures) for the pressurizer heater cables; the pressurizer heater cables were not protected from fires while the containment sprinkler system was inoperable:

The inspectors observed that the PNSC reviewed and approved the Significant Adverse Condition Evaluation report for this event (CR 99-00208). The inspectors also noted that the licensee initiated and issued Engineering Service Request (ESR) 99-00060, "Operability of the [Reactor Containment Building] Sprinkler System While Not Adequately Drained," Revision 0. (That ESR is discussed in more detail in Section E1.1.)

The inspectors noted that both the subject LER and the Significant Adverse Condition Evaluation report for CR 99-00208 stated that the root cause of the event was a failure by Operations personnel to use applicable plant procedures (specifically, OP-149, "Fire Protection," Revision 12) to operate the containment sprinkler system. The inspectors' examination of the associated circumstances determined that the licensee had identified an appropriate root cause and contributing causes. The inspectors also determined that the root cause of this event involved a violation of NRC requirements, as described below.

The inspectors noted that TS 6.8.1 requires, in part, that written procedures be established, implemented, and maintained covering fire protection program implementation. The inspectors considered that, with respect to operation of the containment fire protection sprinkler system, procedure OP-149 was the written procedure appropriate to the circumstances which implemented TS 6.8.1. The inspectors thus considered the failure to operate the containment fire protection sprinkler system in accordance with procedure OP-149 to be a violation of TS 6.8.1. However, the inspectors noted that the licensee restored compliance within a reasonable time after the violation was identified, and placed the violation into the corrective action program to prevent recurrence. Furthermore, the inspectors considered that the violation was not repetitive as a result of inadequate corrective action, and was not willful. Therefore, this Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Appendix C of the NRC Enforcement Policy. The inspectors have designated this violation as NCV 50-400/99-01-01, failure to follow procedures while operating fire protection systems. This violation is in the licensee's corrective action program as CR 99-00208.

The inspectors noted that the Significant Adverse Condition Evaluation report for CR 99-00208 stated that "inadequate management oversight of the Fire Protection Program" was a contributing cause, and that the licensee subsequently initiated CR 99-00420 to investigate further that cause. That issue is described further in Section F7.1.

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 to determine if the work request/job orders (WR/JOs) were being performed in accordance with approved procedures and regulatory requirements, that personnel were appropriately trained and qualified, and that appropriate radiological controls were followed:

<u>WR/JO</u>	<u>Description</u>
97-AGFB-1	Target rock valve reed switch replacement on the "B" Emergency Service Chilled Water chiller air valve (1SA-502)
AIHX-003	Preventive maintenance on the 6.9KV breaker for the "A" Auxiliary Feed Water pump motor.
99-ABLZ1	Investigate cause of failure of reactor trip breaker to close

b. Observations and Findings

The inspectors found the work performed under these activities to be professional and thorough. All work observed was performed with the work package present and in active use. Technicians were experienced and knowledgeable of their assigned tasks. The inspectors frequently observed supervisors and system engineers monitoring job progress, and quality control personnel were present whenever required by procedure. Peer-checking and self checking techniques were being used. When applicable, appropriate radiation control measures were in place.

c. Conclusions

Routine maintenance activities were conducted by experienced and knowledgeable technicians, and in accordance with approved procedures.

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:

<u>Procedure</u>	<u>Title</u>
OST-1231	"Control Room Emergency Filtration System Operability 18 Month Interval," Revision 10
OST-1040	"Essential Services Chilled Water System Operability, Quarterly Interval Modes 1-6," Revision 15
OST-1119	"Containment Spray Operability Train B Quarterly Interval Modes 1-4," Revision 15

b. Observations and Findings

The inspectors observed that the pre-test briefs were conducted in accordance with approved procedures, that both control-room operators and field personnel used appropriate procedures and employed effective place-keeping techniques, and that involved personnel communicated effectively.

c. Conclusions

The surveillance performances observed were conducted in accordance with applicable procedures.

M8 Miscellaneous Maintenance Issues (92700)

M8.1 (OPEN) LER 50-400/1999-002-00: Reactor trip due to not removing a temporary device from a relay following calibration. On January 14, personnel performing a relay calibration on a non-safety related 6.9 kv electrical bus failed to remove a temporary blocking device prior to reinstalling the relay. This blocking device simulated a continuous trip signal on the output of the undervoltage timing relay; therefore, reinstalling the relay simulated an undervoltage trip signal to the associated bus. In response to that signal, the bus tripped. Loads powered from the affected bus included one of the plant's three reactor coolant pumps (RCPs) and the feeder breaker for another bus, which powered another of the RCPs. This loss of power to two of the plant's three RCPs while the reactor was above 10% power satisfied the logic for an automatic reactor trip, and the reactor tripped.

The inspectors observed the licensee's immediate response to this trip, as described in Section O1.2 of NRC Inspection Report (IR) 50-400/98-11. The inspectors noted that the reactor trip itself and the apparent cause of the trip are in the licensee's corrective action program as CRs 99-00115 and 99-00132.

The inspectors observed that the licensee developed a professionally-produced 13-minute videotape to communicate to the plant staff the lessons learned from the incident. The inspectors viewed that video, and noted that it effectively recreated the circumstances associated with the trip, and emphasized the lessons learned. The inspectors found that plant management had developed plans to show this video to all site personnel, and that by the end of the inspection period, had in fact shown it to many.

Pending review of the licensee's analysis of this event and completion of the licensee's corrective actions, this LER will remain open.

III. Engineering

E1 Conduct of Engineering

E1.1 Engineering Service Requests

a. Inspection Scope (37551)

The inspectors reviewed all or portions of the following Engineering Service Requests (ESRs) to determine if procedure EGR-NGGC-005, "Engineering Service Requests," Revision 5, was being followed:

<u>ESR #</u>	<u>Revision #</u>	<u>ESR Title</u>
99-00060	0	"Operability of the [Reactor Containment Building] Sprinkler System While Not Adequately Drained"
99-00075	0	"Operability Determination for A Train Reactor Trip Breaker"
99-00083	0	"Operability Determination for [Emergency Service Water] Expansion Joint Leak"

b. Observations and Findings

The inspectors observed that all three ESR packages were consistent with EGR-NGGC-005 requirements.

The inspectors observed that ESR 99-00060 concluded that the fire protection containment sprinkler system had been inoperable while the piping inside containment had been filled with water, because the static pressure of the water against a check valve would prevent depressurization of the piping, thereby preventing automatic actuation of the sprinkler system. The inspectors found that conclusion to be valid.

The inspectors noted that ESR 99-00075 was initiated to determine the operability of the "A" train reactor trip breaker, following completion of a surveillance test in which the breaker would not close on the first attempt after an undervoltage trip test. The inspectors found that the ESR noted that:

- the breaker had not failed to trip open during the surveillance test,
- all trips of the breaker had worked as required,
- during troubleshooting, the breaker had consistently and successfully tripped open on demand,
- no spurious trips of the breaker had occurred,
- no testing or inspection results indicated that a spurious trip might occur, and
- closing the breaker on the first attempt was not a TS-required function.

The ESR concluded that because the breaker could satisfy all TS-required functions, the breaker was operable. The inspectors found that conclusion to be valid.

The inspectors found that ESR 99-00083 was initiated to assess the operability of the emergency service water (ESW) system, after a relatively small leak was discovered on the bellows joint downstream of the "A" ESW pump. The inspectors noted that the ESR adequately characterized the leak, and assessed the impact of the leak on stresses in adjacent welds, and on the ability of the system to deliver its required flow rate. The ESR concluded that the impacts of the leak on both weld stresses and flow rate were acceptable, and that the ESW system remained operable. The inspectors considered that the ESR methodology was acceptable, and that its conclusions were valid.

c. Conclusions

The ESRs reviewed by the inspectors were prepared in accordance with applicable procedures, reached valid conclusions, and adequately supported the operability of the subject equipment.

E8 Miscellaneous Engineering Items (92903)

- E8.1 (OPEN) LER 50-400/1998-004-01: design deficiency related to inadequate runout protection for the turbine-driven auxiliary feedwater pump (TDAFWP). This LER is a revision to LER 50-400/1998-004-00 which incorporates additional information; it reports that tests conducted by the pump vendor on a duplicate pump demonstrated that the pump could be operated at runout conditions for over two minutes without damage. The original LER had reported that during a postulated main steam line break or main feedwater line break scenario, the possibility existed that the TDAFWP could operate at

runout conditions for a maximum of 41 seconds. Since pump testing had demonstrated that the pump could operate at runout conditions with no damage for longer than the period it could possibly be expected to operate, this LER concluded that no further actions are required.

Pending the inspectors' review of the vendor's test report, this LER remains open.

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 acceptable. 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 good control of dose. Primary and secondary chemistry were maintained within technical specification limits. Chemistry sampling activities were accomplished in accordance with plant procedures. The control of contamination and dose for the site was good, and was attributable to good teamwork between the various departments.

P1 Conduct of Emergency Planning (EP) Activities

P1.1 Review of EP Program (82701)

a. Inspection Scope

The inspectors reviewed EP program activities to determine whether the licensee's emergency response capability was maintained in a state of operational readiness, and to determine whether changes to the program since the last such inspection (June 1997) met commitments, NRC requirements, and affected the licensee's overall state of preparedness.

b. Observations and Findings

Since June 1997 the licensee issued Revisions 31, 32, and 33 to the Emergency Plan ("the Plan"). The inspectors selectively reviewed, and discussed with licensee representatives, the changes made in these revisions. The revisions to the Plan were submitted to the NRC in accordance with regulatory requirements, as were revisions to the plant emergency procedures (PEPs), which implemented the Plan. These revisions were determined to have had no adverse effect on the licensee's level of emergency preparedness. No emergency declarations have been made since the last inspection.

Section 5.1.2 of the Plan specified that the Emergency Planning Coordinator would review and certify the Plan and PEPs to be current on an annual basis. The licensee's Surveillance Tracking and Scheduling System (STSS) indicated that this task was last completed on July 22, 1998, but no auditable documentation was available in support of this closure date. Such documentation was on file for the years 1994-1997. Licensee management stated that the task description in the STSS would be modified to specify the preparation of an appropriate record to document the performance and certification of this annual review. CR 99-00628 was initiated to ensure follow-up.

Emergency facilities, equipment, instrumentation, and supplies were inspected and found to be well-maintained. The Technical Support Center (TSC) and Emergency Operations Facility (EOF) were state-of-the-art in all significant respects, including capability for displaying and trending plant data. The Emergency Response Facility Information System (ERFIS) was not functional at the EOF when the inspectors toured that facility on March 3. ERFIS was restored to operability approximately one hour later, according to licensee representatives. CR 99-00616 was initiated to ensure follow-up. Emergency response facility and equipment surveillances were performed in accordance with licensee procedures.

The public-notification system comprised 81 sirens, 79 of which functioned properly during the annual full-volume tests in both 1997 and 1998. Siren-system performance data submitted to the Federal Emergency Management Agency (FEMA) indicated that overall system operability for both 1997 and 1998 was 98.6 percent, exceeding the FEMA acceptance criterion of 90 percent.

Organizational and management control of the EP program changed in two significant aspects since the last inspection. The EP unit was temporarily under Plant Support Services from late 1996 to late 1997, at which time it was transferred back to Regulatory Affairs. The other significant change in this area was the appointment of a new EP supervisor in December 1997. The inspectors did not identify lapses in management and oversight of the EP program as a result of these transitions. Interviews with EP staff and review of program accomplishments and initiatives disclosed strong plant management support for the EP program.

The inspectors reviewed the emergency program maintenance (EPM) procedures which delineated the emergency response organization (ERO) training program (EPM-200) and EP drill and exercise program (EPM-210). Major improvements in the formalization of ERO training were implemented in 1998. During 1998, the licensee conducted "full-scale" quarterly drills to allow for participation by personnel in each of the four ERO teams. Drill participation was required annually for most ERO positions, excluding primarily repair team personnel. In addition, nine small-scale drills were conducted, focusing on such areas as recovery, emergency medical response, and environmental sampling. Many areas and items for improvement emanated from the drill critiques. The licensee's ERO training/drill program was determined to be a strength.

The inspectors reviewed audit report H-EP-98-01, and concluded that this audit, conducted by the Nuclear Assessment Section, was comprehensive and met NRC requirements. Outside expertise was appropriately employed for the audit team. Meaningful issues were identified, and resultant corrective actions were thorough and timely.

c. Conclusions

The licensee's emergency preparedness program was being maintained in a state of full operational readiness. Changes to the program since the last inspection were consistent with commitments and NRC requirements, and did not decrease the licensee's overall state of preparedness. The licensee's ERO training/drill program was determined to be a strength.

P8 Miscellaneous EP Issues (82701)

P8.1 (Closed) IFI 50-400/97-11-01: exercise weakness. The failure of the TSC staff to promptly detect and evaluate the waste gas decay tank leak resulted in delayed protective actions for the TSC. The inspectors reviewed the licensee's January 8, 1998 response to this finding. Through review of training records and exercise critique reports, the corrective actions delineated in this letter were verified. These corrective actions included training and drills focusing on the root cause of the subject issue which was lack of understanding regarding the accessing of ERFIS data for plant radiation monitors.

S1 Conduct of Security and Safeguards Activities

S1.1 General Comments (71750)

The inspectors observed security and safeguards features and activities during the conduct of plant tours, including:

- general integrity of the protected area barrier
- maintenance of the isolation zones
- illumination levels
- access control
- vital area controls

Security and safeguards activities were conducted in accordance with applicable procedures and the Security Plan.

F1 Control of Fire Protection Activities

F1.1 General Comments (71750)

During the conduct of tours and observation of maintenance activities, the inspectors observed fire protection equipment and activities, and found that equipment and those activities to be acceptable.

F2 Status of Fire Protection Facilities and Equipment**F2.1 General Comments (71750)**

The inspectors noted a discrepancy between the description in section 9.5A of the Final Safety Analysis Report and installed plant components, in that several multi-cycle control valves in fire protection deluge systems do not have an emergency mechanical release mechanism, and that manual alarm stations in containment do not actuate multi-cycle control valves. The licensee's initial assessment was that this discrepancy did not affect the ability of the plant staff to mitigate the effects of fires in accordance with plant procedures. The licensee initiated CR 99-00602 to track this issue.

F7 Quality Assurance in Fire Protection Activities**F7.1 Self-Assessment in Fire Protection (71750,71707)****a. Inspection Scope**

The inspectors reviewed Nuclear Assessment Section (NAS) reports H-FP-98-02 and H-SP-99-01 on fire protection (FP). The inspectors also reviewed CR 99-00420 and observed review of the corresponding Significant Adverse Condition Evaluation (SACE) report by an ad-hoc committee of PNSC members on March 4.

b. Observations and Findings

The inspectors observed that the NAS issued the H-FP-98-02 report on January 29. This inspectors noted that the report determined that although the FP program was effective, a declining trend in the program performance was observed. The report also noted that precursors to significant problems in the program were observed which could lead to a degraded FP program.

The inspectors observed that following the incident described in Section O8.2 of this report, the NAS department reviewed the draft report of the root-cause investigation of that incident. Their review of that incident and the investigation report prompted the NAS to declare the fire protection ineffective. That declaration was documented in NAS report H-SP-99-01, "Harris Fire Protection Program Ineffectiveness Determination Special Report," which was issued on March 11.

The inspectors considered that the NAS assessment of FP ineffectiveness was timely, and was well-supported by the information available to NAS assessors. After reviewing related information, the inspectors concurred with that assessment. The inspectors concluded that NAS personnel appropriately concluded that the FP program was ineffective, and effectively brought that issue to the attention of plant management.

The inspectors observed that after CR 99-00208 determined that "lack of management oversight" was a cause of that incident, the licensee initiated CR 99-00420 to further investigate that cause, and initiated a corresponding Significant Adverse Condition investigation. The inspectors reviewed the report of that investigation, and noted that it identified comprehensive corrective actions.

c. Conclusions

Nuclear Assessment Section personnel appropriately concluded that the Fire Protection program was ineffective, and effectively brought that issue to the attention of plant management.

V. Management Meetings

X1 **Exit Meeting Summary**

The inspectors presented the inspection results to members of licensee management on March 19. The licensee acknowledged the findings presented. When the inspectors asked whether any of the material examined during the inspection should be considered proprietary, the licensee identified none.



PARTIAL LIST OF PERSONS CONTACTEDLicensee

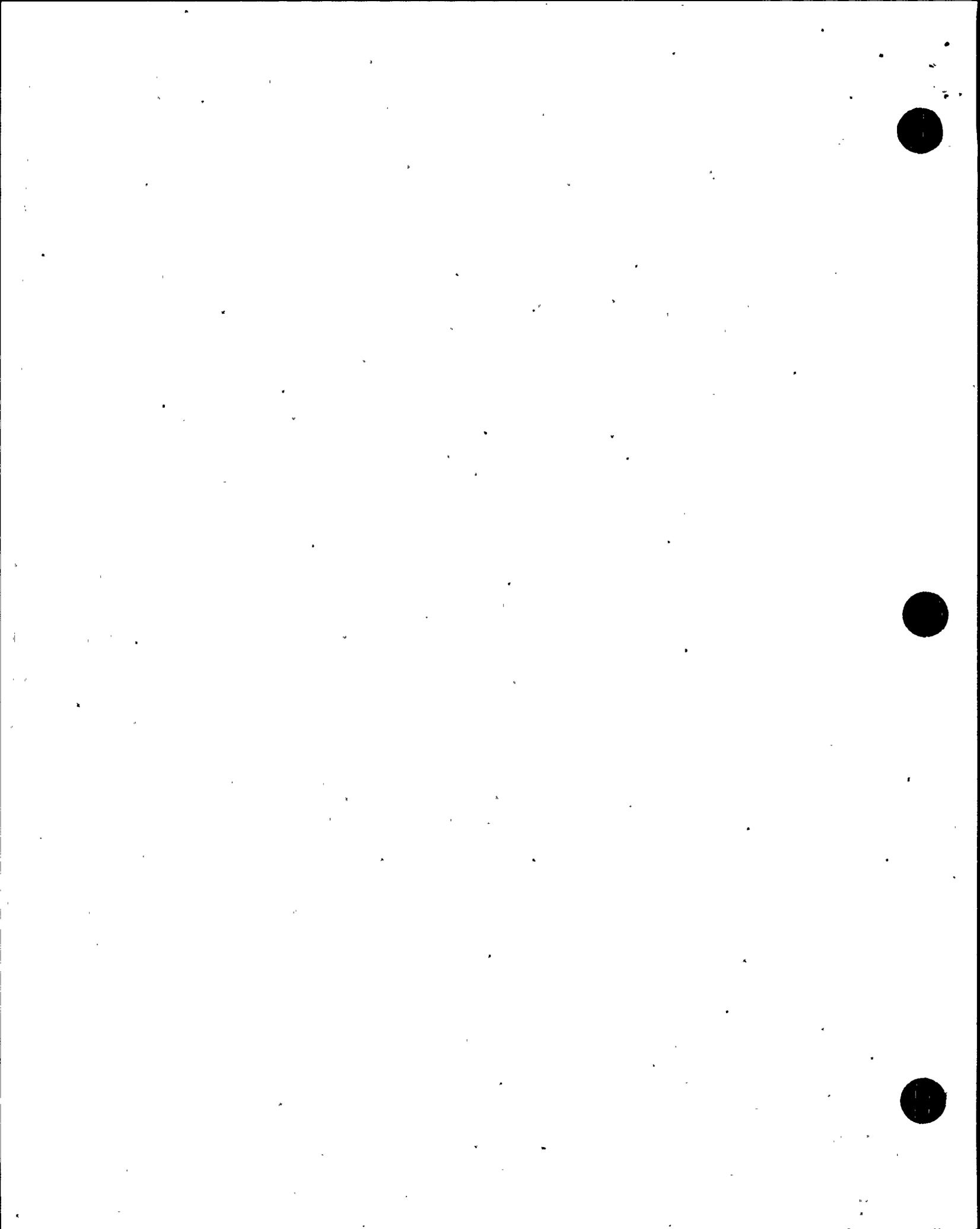
D. Alexander, Manager, Regulatory Affairs
D. Braund, Superintendent, Security
B. Clark, General Manager, Harris Plant
J. Collins, Manager, Maintenance
J. Cook, Manager, Outage and Scheduling
W. Cooper, Engineer, Harris Engineering Support Services
J. Dority, Engineer, Harris Engineering Support Services
J. Eads, Supervisor, Licensing and Regulatory Programs
R. Field, Manager, Nuclear Assessment
R. German, Manager, Plant Support Services
T. Hobbs, Acting Manager, Operations
M. Keef, Manager, Training
G. Kline, Manager, Harris Engineering Support Services
S. McCain, Supervisor, Emergency Preparedness
K. Neuschaefer, Superintendent, Radiation Protection
J. Scarola, Vice President, Harris Plant

NRC

B. Bonser, Chief, Reactor Projects Branch 4

INSPECTION PROCEDURES USED

IP 37551: Onsite Engineering
IP 61726: Surveillance Observations
IP 62707: Maintenance Observation
IP 71001: Requalification Inspection
IP 71707: Plant Operations
IP 71750: Plant Support Activities
IP 82701 Operational Status of the Emergency Preparedness Program
IP 92700: Onsite Followup of Events
IP 92901 Followup Operations
IP 92903 Followup Engineering
IP 93702: Onsite Response to Events



ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-400/99-01-01 NCV Failure To Follow Procedures While Operating Fire Protection Systems. (Section O8.1).

Closed

50-400/97-11-01 IFI Exercise Weakness--The failure of the TSC Staff to Promptly Detect and Evaluate the Waste Gas Decay Tank Leak Resulted in Delayed Protective Actions for the TSC (Section P8.1).

50-400/99-01-01 NCV Failure To Follow Procedures While Operating Fire Protection Systems (Section O8.1).

50-400/1999-003-00 LER Plant Outside the Design Basis Due to Isolation of the Fire Protection Containment Sprinkler System (Section O8.1).

Discussed

50-400/1998-004-01 LER Design Deficiency Related to Inadequate Runout Protection for the Turbine-Driven Auxiliary Feedwater Pump (Section E8.1).

50-400/1999-002-00 LER Reactor Trip Due to Not Removing a Temporary Device From a Relay Following Calibration (Section M8.1).