U.S. NUCLEAR REGULATORY COMMISSION

REGION II

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Report No:	50-302/97-16
Licensee:	Florida Power Corporation
Facility:	Crystal River 3 Nuclear Station
Location:	15760 West Power Line Street Crystal River, FL 34428-6708
Dates:	September 21 through October 25, 1997
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Enclosure 2

EXECUTIVE SUMMARY

Crystal River 3 Nuclear Station
NRC Inspection Report 50-302/97-16

This integrated inspection included aspects of licensee operations, engineering, maintenance, and plant support. The report covers a 5-week period of resident inspection; in addition, it includes the results of an announced inspection by a regional reactor inspector.

Operations

The licensee's efforts to develop an interim Mode Restraint List were proactive and a good effort considering the limited time available to review existing databases and develop a useful list. However, the result was a manual system that was cumbersome to administer and update and created a challenge to ensure every applicable database was captured fully and maintained current (Section O1.2).

A Non-Cited Violation (NCV 50-302/97-16-01) was identified for two examples of failure to adhere to operations procedures during system manipulations. The licensee management showed appropriate concern over this evidence of operator inattention during evolutions involving safety related components. The licensee took appropriate corrective actions (Section O1.3).

The licensee's corrective action for a previous problem with uncontrolled memos placed in Technical Specifications (TS) were thorough and resulted in the identification of numerous incorrectly filed TS revisions in the control room. The problem was identified as a Non-Cited Violation (NCV 50-302/97-16-02) (Section O3.1).

Operations questioning attitude and communications have improved but remain a challenge to the licensee. Coordination between site organizations has significantly improved as a result of meeting format and expectation changes instituted by licensee management. The licensee continues to focus on improving performance, and good progress is being made (Section O4.1).

The licensee had a good process and a comprehensive plan for modification and start-up procedure training for all site disciplines (Section O5.1).

The licensee's self-assessment activities remain effective. Problems with follow-up and presentation for Nuclear Quality Assessments findings were being adequately addressed. Training on improvements to the Corrective Action System database program was adequate, and the new system should be a significant improvement in standardizing the licensee's corrective action efforts and in enabling performance trending. A problem with improper classification of precursor cards was the only notable remaining deficiency with the licensee's corrective action system, but the licensee's oversight was appropriate to correct the problem prior to restart (Section O7.1).

An Operations Self Assessment was very thorough and self-critical, focusing extensively on observations of performance in the field. Findings were well organized, tracked for resolution, and valid. The licensee's consistent use of numerous outside organizations and individuals to support self-assessments

was considered a strength (Section O7.1).

The licensee's individual corrective actions were adequate to address the causes of some violation examples and allow closure of the open items. However, several deficiencies with the licensee's actions indicated that there was a lack of coordination in response to several examples of a common problem and a lack of a thorough evaluation of the appropriate overall corrective action scope (Section O8.1).

The inspector determined the licensee's actions to address items on the Workaround List were good and reflected good management attention and commitment to reduce operator burden, so it was closed as a restart item (Section O8.2).

The licensee's programmatic and specific actions to correct inadequate translation of design requirements for the fire water storage tank into plant procedures, were adequate to close the open violation and restart item (Section O8.3).

Maintenance

Even though the mechanical maintenance and the electrical maintenance shops were not within their goals, both of the shops have greatly reduced their individual corrective maintenance backlogs. In addition, the overall maintenance department goals were reached in September 1997 and have been maintained since that time, demonstrating that a sustained improvement in the maintenance management of the work backlog has been achieved (Section M2.1).

The licensee has identified a history of repeat maintenance on certain safety related components and began an evaluation to identify the causes. The inspectors were concerned with the potential programmatic and personnel issues indicated by the high incidence of repeat maintenance (Section M2.2).

The scheduling of a diesel fuel oil pump surveillance for ASME Section XI testing was based on an assumption of a scheduled earlier performance, without the ability to verify the early performance. This highlighted a weakness in the surveillance scheduling process (Section M3.1).

The licensee performed tracer gas testing of the Control Complex Habitability Envelope (CCHE) that initially appeared to meet the acceptance criteria for CCHE in-leakage. However, the licensee determined that the original design basis in-leakage had been exceeded and planned a submittal to resolve the difference and their change in methodology. This restart issue will be followed as part of the close-out of LER 50-302/97-22 (Section M3.2).

Engineering

Review of the remaining open corrective actions for a reactor building sump screen violation, determined that the licensee had adequately resolved the issue for closure (Section E2.1).

Emergency Diesel Generator 1A testing and analysis was sufficient to consider

the diesel operable. Many unexpected delays revealed the lack of a single point of contact for the EDG-1A maintenance, modification, and testing (Section E2.2).

A review of problems with the modification review process failing to identify needed revisions to other departmental procedures revealed that administrative procedures were in place which required procedure reviews but that the requirements had not been rigorously implemented. This indicated that a weakness still existed among licensee personnel for implementation of the various processes which control safety related systems (Section E3.1).

The licensee had taken good programmatic and specific corrective actions to resolve a problem with non-safety related positioners on safety-related valves (Section E8.1)

A Violation (VIO 50-302/97-16-03) was identified for two examples of inadequate design of the Waste Disposal System as described in the Final Safety Analysis Report (Section E8.2).

There was a weakness in the licensee's corrective actions for Violation 96-06-06 in that the scope for the extent of condition review did not include evaluating the seismic class breaks for all of the Waste Disposal System tanks and associated piping (Section E8.2).

A Violation (VIO 50-302/97-16-04) was identified for failure to follow Compliance Procedure CP-111 by not performing a 10 CFR 50.59 safety evaluation within 90 days after identification of a non-conforming condition, which conflicted with the Final Safety Analysis Report description (Section E8.2).

A Violation (VIO 50-302/97-16-05) was identified for noncompliance with the Off-Site Dose Calculation Manual surveillance requirements for the waste gas decay tanks (Section E8.2).

Plant Support

Previous problems with Radiologically Controlled Area (RCA) control should have alerted the licensee to the potential for further problems when altering the RCA access points for the emergency diesel (EDG) rooms. The inspectors considered the poor anticipation and planning for the problems with EDG room RCA access a weakness (Section R1.1).

A problem with an individual allowing a second individual to pass through a security door into a vital area without appropriately badging through the door card reader was noted as a practice that bypassed necessary security controls for vital area access and verification of personnel locations for accountability in an emergency. The incident witnessed by the inspector did not violate any requirements but indicated a poor practice with the licensee's escort policy (Section S1.1).

Problems with an inattentive security guard witnessed by the inspector were considered to be an isolated incident. The licensee's response was quick and an aggressive resolution of the problem (Section S1.2).

The inspectors assessed the licensee's performance in the five areas of continuing NRC concern in the following sections: the assessments are limited to the specific issues addressed in the respective sections.

NRC AREA OF CONCERN	ASSESSMENT PARAGRAPH								
	04.1	07.1	08.1	08.2	08.3	E2.1	E8.1	E8.2	E8.3
Management Oversight	G	G	A	G	A	A	G	I	G
Engineering Effectiveness				G	G	A		I	G
Knowledge of Design Basis					A	A		I	A
Compliance With Regulations	A	G	A	G	A	A	G	I	G
Operator Performance	A	G	A	G					

S = Superior G = Good A = Adequate/Acceptable I = Inadequate
Blank = Not Evaluated/Insufficient Information

04.1: Operator Performance and Communication Observations

07.1: Licensee Self-Assessment Activities

08.1: (Closed) VIO 50-302/97-05-01: Failure to Follow Equipment Control Tagging Procedural Requirements

(Closed) VIO 50-302/96-11-03: Personnel Performing Work on Reactor Building Sump Without Logging Onto a Clearance

08.2: (Closed) Operator Workarounds Restart Item (FPC Restart Issue O-7)

08.3. (Closed) EA 95-126 VIO II.C: Failure to Ensure Fire Water Storage Tank Contained Adequate Water Volume

E2.1: (Closed) VIO 50-302/96-11-04: Reactor Building Sump not constructed in accordance with approved Construction drawings.

E8.1: (Closed) URI 50-302/96-201-04: Nonsafety-Related Positioners on Safety-Related Valves

E8.2: Followup on Waste Disposal System Precursor Card Resolution

E8.3: (Closed) URI 50-302/96-201-01: Long term plant cool down following a small break LOCA assuming a single failure in the decay heat drop line

Report Details

Summary of Plant Status

The unit remained in Mode 5 throughout the inspection period, continuing in the outage that began on September 2, 1996. The reactor coolant system (RCS) remained filled to a normal pressurizer level with a nitrogen over pressure of approximately 40 psig. The B train of forced decay heat removal system flow remained operable and in service. A swap from train B to train A in service occurred October 5, 1997, following completion of modifications and testing of the A Emergency Diesel Generator (EDG) radiator upgrade and other routine emergency equipment train-related work. Work on the B EDG radiator and other B train emergency equipment then commenced. Both once-through steam generat( ) (OTSG) remained filled to a normal inventory with a nitrogen blanket and one was always preserved as available to support use as a backup decay heat sink if needed.

I. Operations

O1 Conduct of Operations

O1.1 General Comments (71707)

Using Inspection Procedure 71707 the inspectors conducted routine reviews of ongoing plant operations which included shift turnovers, response to problems, log reviews, coordination meetings, and review of clearance tagging processes. Significant observations are discussed in the following paragraphs.

O1.2 Mode Restraint Tracking Process

a. Inspection Scope (71707)

The inspectors had previously observed that the licensee did not have a system to ensure all required actions and outage work were completed prior to ascending to a higher plant operating mode as defined in Technical Specifications. New licensee management recognized this as a problem, and an interim process was developed to track mode restraints. The inspector reviewed the licensee's process and resultant mode restraint list.

b. Observations and Findings

The licensee's Mode Restraint Tracking List was developed quickly and was intended as an interim solution to support startup and mode ascension in December 1997. Consequently, the system was a simple, computer database that did not have any automated functions. Activities of other licensee programs such as maintenance work requests, corrective action system, or equipment out of service logs did not automatically initiate a mode restraint. Any item on another program list that would be a restraint for entering a higher mode must be identified by a cognizant individual, requested to be entered on to the Mode Restraint List by a manual paper form, and manually entered in to the database. Removal of items from the list was accomplished by a similar process.

The scope of the licensee's effort did not include surveillance requirements because their surveillance tracking system adequately schedules and monitors these potential mode restraints. However, the licensee expected all other potential items to be included on their list so they had to perform a review of numerous program databases to identify and include any mode change restraints. This was done during August and September 1997. The inspector reviewed the effort and observed that the licensee had reviewed or planned to review all applicable databases and had been thorough in their reviews. Their efforts resulted in a list of over 400 mode restraints. The inspector did not identify any concerns with the licensee's reviews but noted it would be a significant and labor-intensive effort to maintain the list accurate as future items were identified and other items closed. The new Corrective Action Program database tool, discussed in Section 07.1, and implemented by the licensee on October 1, 1997, contained this feature, which the licensee plans to implement for future outages. The inspector noted it's capabilities appeared to support this goal. The inspector reviewed the licensee's controls for entering and removing items from the list which are partially delineated in Nuclear Operations Department (NOD)-57, Restart Management, Revision 3. The inspector noted that only four individuals had approval authority for editing the list, and the licensee had established good approval controls. However, many other controls were not fully proceduralized in NOD-57 because the licensee viewed the list as an interim fix. The inspector did not consider this to be significant due to the simplicity of the licensee's system. The inspector's review of the programmatic aspects of the Mode Restraint List was completed. Tracking of specific issues and completeness of the licensee list will be inspected as part of Mode 4 transition activities.

c. Conclusions

The inspector concluded the licensee's efforts to develop a Mode Restraint List were proactive. The licensee made a good effort considering the limited time available to review existing databases and develop a useful list. However, the result was an interim manual system that was cumbersome to administer and update. The inspector concluded the licensee would be challenged to ensure every program database was fully captured and maintained current in the Mode Restraint List.

O1.3 Procedure Adherence in Operations

a. Inspection Scope (71707)

The inspector performed an inspection on the circumstances of two occurrences involving procedure adherence during the inspection period.

b. Observations and Findings

On October 1, 1997, while restoring Decay Heat Removal system (DH) purification, the letdown high pressure alarm was received. The pressurizer level decreased by two inches, a loss of approximately 50

gallons. One of the valves manipulated, DHV-106, had been manually closed due to seat leakage. The licensee's investigation revealed that DHV-106 had been energized and detensioned from its manually closed state, prior to being directed to by the approved procedure, Operating Procedure (OP)-404, Decay Heat Removal System, Revision 108.

This, combined with the known seat leakage, allowed sufficient flow to pressurize the system. The operators responded to the high pressure alarm by isolating the purification loop, which secured the inventory loss.

A statement from the involved, Non-Licensed Operator (NLO) stated that he had attended the pre-job briefing for the task, which addressed the procedure, OP-404, Section 4.13 and possible problems that might arise. At that meeting, it was noted that DHV-106 had been manually closed. The Chief Nuclear Operator (CNO) instructed the NLO to detension the valve manually before closing its breaker, so as not to damage the valve by operating it electrically.

Procedure OP-404, step 4.13.4, provided instructions for starting DH purification. Detail step 1 of 4.13.4 instructed the operator to open DHV-76, Letdown Filter Supply to DH, for "B" DH train. Detail step 2 instructs the operator to energize and throttle open DHV-106, DH Supply to Makeup and Purification System, until the desired flowrate was obtained. After the completion of step 4.13.3, the NLO contacted the board operator and received permission to detension and energize DHV-106. The NLO incorrectly detensioned DHV-106 prior to performing detail step 1. This resulted in the seat leakage past DHV-106 pressurizing the piping and lifting the relief valve to the sump. Based on statements from the operators, the licensee determined that the board operator did not have the procedure in hand when he authorized the NLO to detension and energize DHV-106. He did not realize, therefore, that the NLO had not completed detail step 1 of 4.13.4, as required, prior to performing the operations on DHV-106. After evaluating the evolution, the purification loop was placed in service without further alarms or problems. The licensee met with the SROs to discuss the incident and management expectations. A single point of contact will be designated during all pre-job briefings. The licensee is developing an Operations Study Book entry to discuss the event and root causes. A follow-up training session for the involved personnel is being developed to discuss the event and proper operation of the DH system.

This failure to follow procedure is considered to be an example of violation of procedural requirements.

On October 18, 1997, while performing OP-505, Radiation Monitoring System, the NLO failed to follow detail step 7 of step 4.3.2.2, which required that the backup pump for RMA-6 be placed in auto. A chemistry technician discovered the misaligned component while checking the system flow as part of step 4.3.2.3. The failure of the licensee NLO to adhere to the procedure resulted in loss of redundancy for the sampling pumps for RMA-6, reactor building air sampling radiation monitor. The backup

sampling pump was placed in auto, as required by the procedure. A revision to the procedure was issued which required a signature for the completion of each individual detail step, rather than just the completion of each step.

The failure to follow the approved procedure is considered to be an additional example of failure to follow procedural requirements. This 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 violation is identified as NCV 50-302/97-16-01, Failure to Follow Operations Procedures.

c. Conclusions

One non-cited violation was identified for two examples of failure to adhere to operations procedures during system manipulations. The licensee management showed appropriate concern over this evidence of operator inattention during evolutions involving safety related components. The licensee took appropriate corrective actions.

03 Operations Procedures and Documentation

03.1 Incorrect Technical Specification Revisions in Main Control Room

a. Inspection Scope (71707)

While performing follow up to the licensing memos that were found by the inspector in the main control room copy of Technical Specifications (TS) on August 22, 1997, as documented in Inspection Report 50-302/97-13, the licensee discovered numerous pages in the TS were incorrect, older revisions. The licensee immediately initiated precursor card (PC) 97-6303 to implement corrective actions. The inspector reviewed the results of the licensee's efforts.

b. Observations and Findings

The inspector observed that the wrong revisions were initially found by an operator auditing the TS who initiated the PC. Several subsequent examples were found by the Document Control technicians doing a more thorough follow-up audit. Each of the discrepancies was corrected when found. In summary, 21 errors were identified which affected the control copies of the TS assigned to the Nuclear Operator, Assistant Nuclear Shift Supervisor, and Shift Supervisor on Duty. The inspector considered these to be potentially very significant errors that could have led to misapplication of license requirements. In response to this concern, the licensee evaluated the potential significance of each incorrectly filed revision. The licensee concluded the errors did not have any safety significance because they: were primarily associated with the TS Bases, were primarily minor editorial changes, and involved recent changes to the TS. The inspector also reviewed each item, did not identify any potential for incorrect TS applications, and verified the licensee's conclusions were valid. The licensee performed an

apparent cause determination under PC 97-6303 which identified potential poor control of revision changes by Operations personnel as the primary cause. The primary component of their corrective action was to transfer document update responsibility to Document Control from Operations for controlled documents assigned to Operations. They were also evaluating the scope of controlled documents assigned to Operations to see if it could be reduced. The licensee's initial corrective action was to perform the complete audits that identified the subsequent deficiencies. The inspector considered these actions adequate to address the problem. Consequently, this licensee identified and corrected problem is dispositioned as a Non-cited Violation NCV 50-302/97-16-02, Incorrect Revisions Filed in Control Room Technical Specifications.

c. Conclusions

The licensee's efforts for a previous problem with uncontrolled memos placed in TS were thorough and resulted in the identification of numerous incorrectly filed TS revisions. The safety impact of the incorrect revisions was minor, the problem was not preventable by corrective actions for any other problems within the past two years, and the licensee's corrective actions were adequate. Consequently the problem was dispositioned as an NCV.

O4 Operator Knowledge and Performance

O4.1 Operator Performance and Communication Observations

a. Inspection Scope (71707)

The inspectors continued to assess examples of Operations performance to determine the operators' questioning attitudes and communications practices. Operations Readiness is a restart restraint item on the NRC Restart List.

b. Observations and Findings

Minor problems continued to occur which were indicative of weaknesses in Operations communications with other departments and inconsistent questioning attitudes. Examples included poor operations shift management awareness of a radiography evolution in the plant and the inadvertent draining of 300 gallons of Once-Through Steam Generator(OTSG) water to the reactor building sump on September 30, 1997. The latter example occurred during disassembly of a flanged feed nozzle due to a loop seal that was not questioned or noted by the operators preparing the clearance tagging order to support the work. However, the former example was questioned by an Auxiliary Building operator who stopped the evolution. This was a good example of ownership of his area and a questioning attitude.

The inspectors have observed that the licensee has changed the format and attendance of numerous planning meetings including prejob briefings, shift turnovers, the 6:30 a.m. outage coordination meeting, and the 8:00

a.m. Plant Manager's Review Meeting. The changes were intended by the licensee to limit the involvement of unnecessary personnel, improve interdepartment communications by raising problems and challenges quickly, facilitate solutions by having appropriate accountable personal from their departments present, and to focus on problematic program areas. Additionally, the licensee created an Outage Implementation Team that included representatives from each line organization, such as Operations and Work Control, and provided round-the-clock management oversight under the direction of a Shift Outage Director. The inspectors observed that licensee management consistently solicits their staff to come forward with any problems so appropriate resources can be applied. This was an improvement over past licensee practices which were to generally keep problems within an organization and attempt to solve them internally. The inspectors concluded these efforts have largely been successful. Various plant challenges have been resolved expeditiously and involve appropriate parties. The inspectors observed that the licensee has exhibited a significant improvement in good coordination and management oversight of problems over the shutdown of the last year.

c. Conclusions

The inspectors concluded that Operations questioning attitude and communications have improved but remain a challenge to the licensee. Coordination between departments has significantly improved as a result of meeting format and expectation changes instituted by licensee management. The licensee continues to appropriately focus on improving performance in this area, and good progress is being made.

The inspector assessed the licensee's performance, with respect to this restart-related issue, in the five NRC continuing areas of concern:

- Management Oversight - Good
- Engineering Effectiveness - N/A
- Knowledge of the Design Basis - N/A
- Compliance with Regulations - Adequate
- Operator Performance - Adequate

O5 Operator Training and Qualification

O5.1 Modification and Startup Training

a. Inspection Scope (71707)

The inspectors reviewed the licensee's plans for conduct of operator training on new plant modifications and start-up procedures and processes.

b. Observations and Findings

The inspectors noted that the licensee had a comprehensive plan for both modification and start up training and that the engineering modification

process automatically reviewed all modifications for training impacts, including the simulator. The inspector also noted that the licensee consciously implemented control room or system modification on the plant simulator prior to the plant to support training in advance of the modification. The inspector reviewed a selected portion of a site modification list to ensure applicable modifications were identified for training. All of the modifications the inspector identified that would be appropriate for training were on the licensee's planned training list. The inspector also noted that the licensee had planned training for all of the Emergency Operating Procedures, which have recently been extensively revised, and planned training for significant licensing changes. "Just-in-time" training for all of the relevant start-up operations procedures was scheduled as additional sessions for all crews to coincide closely with unit restart. The inspector did not identify any deficiencies with the licensee's planned training.

c. Conclusions

The licensee had a good process and a comprehensive plan to conduct modification and start-up procedure training for all site disciplines.

07 Quality Assurance in Operations

07.1 Licensee Self-Assessment Activities

a. Inspection Scope (71707, 40500)

The inspectors reviewed various licensee self-assessment activities and corrective action process which included:

- Routine reviews of Nuclear Quality Assessments (NQA) activities and surveillance report findings
- Observation of the NQA monthly audit 97-09 exit interview and review of the 97-08 report
- Reviews of precursor cards (PC) entered in to the corrective action system
- Observation of numerous management Corrective Action Review Board (CARB) meetings
- Observation of the Nuclear General Review Committee (NGRC) meeting conducted on October 1, 1997
- Review of Operations Readiness for Restart Self Assessment CRSA 97-19

Notable observations are discussed below.

b. Observations and Findings

The inspectors observed that NQA activities continued to be appropriately focused on fulfilling audit requirements and used discretionary time to inspect suspected problem areas. The licensee recently focused on a review of previous NQA findings and how successfully they had been dispositioned. This revealed several discrepancies in that some NQA findings had not been adequately corrected by applicable licensee departments in a timely manner. NQA has focused attention on better tracking of their findings (as documented on PCs) to ensure timely resolution. The inspector observed that NQA findings presented at several monthly audit exit meetings had been frequently challenged by licensee management. The inspector considered this appropriate, as NQA findings have consistently not been well presented, in that clear ties to safety significance and requirements were not established. Often, NQA could not fully respond to management's questioning because they didn't have the information available in the meeting. Consequently, many of their findings took the appearance of opinions or speculation when they were actually very legitimate. The inspector noted that this diluted the effectiveness and credibility of NQA's findings by making them appear to not be valid. The inspector discussed this concern with the NQA supervisor and was satisfied he recognized the problem and was taking appropriate action to improve their presentation.

The level and detail of CARB reviews of significant Precursor Cards (PC) continued to be thorough and the quality of the root cause investigations and corrective action recommendations continued to improve. The licensee implemented a new corrective action system database tool on October 1, 1997. The inspector attended transition training for the new system and reviewed some of it's capabilities. The inspector concluded the system was a very good improvement over the licensee's previous system. The previous system was a simplistic spreadsheet database with limited search tools and no capability to detect performance trends. The new system contained numerous new searchable and trendable data fields such as mode restraint, cause codes, location and affected systems. The inspector concluded the licensee's training was adequate and that the new system should be a significant improvement in standardizing the licensee's corrective action efforts and in enabling performance trending.

The licensee has been concerned with problems in screening of items in the corrective action (CA) system. A new fifth classification of PC was recently created by revision 59 to Compliance Procedure CP-111, Processing of Precursor Cards for Corrective Action Program, to encompass problems that were not conditions adverse to nuclear quality. The licensee reviewed their existing open PC database to identify any applicable candidates for downgrade to this new classification. Later they determined that some of these downgrades were inappropriate. The inspectors have also had an ongoing concern with classification of PCs as documented in previous reports. Many minor misclassifications have been observed by the licensee's Precursor Card Screening Committee

(PCSC) that were usually corrected by licensee management. The licensee identified more examples and focused appropriate attention on correcting the problem by increasing management review of PCSC decisions, improving the PC problem description information available to the PCSC, and improving classification criteria. The aforementioned improvement in standardization of the CA database system should also improve classifications. They have also commenced a selected rescreening of PCs opened since the new category was created, to ensure they were properly classified and an apparent cause evaluation was performed. The inspector reviewed the apparent cause determination which concluded the screening problems were due to a lack of clear expectations for the PCSC and inappropriate use by the PCS of examples in the screening guidance. The inspector concluded this was an accurate assessment of the cause. The inspector concluded that the inconsistent classification problem was the only notable remaining deficiency with the licensee's corrective action system, but that the licensee's oversight was appropriate to quickly correct the problem prior to restart.

The licensee's findings were reviewed in detail and found to be well organized. The inspector concluded the Operations Self Assessment, CRSA 97-19, was very thorough and self-critical, focusing extensively on observations of performance in the field. The licensee's findings were reviewed in detail and found to be well organized, tracked for resolution, and valid. One notable weakness identified by the licensee was that although Operations did many supervisory self-assessments, the results were not being effectively utilized to assess performance trends and develop corrective actions. The only deficiency noted by the inspector was that many of the findings had not been entered into the CA system by generating PCs, indicating a threshold that was too high. The licensee recognized the error and immediately entered the items into the CA system. The use of non-licensee personnel to assist in the assessment was seen as a strong point. The licensee frequently and consistently uses outside personnel and organizations to assist in their audits and self-assessments. They have requested several Institute for Nuclear Power Operations (INPO) assist visits, obtained reviews by specialists, and utilized teams from other utilities to review their activities and validate their approaches to problems. The inspector observed that this practice has exposed the licensee to different perspectives and resulted in objective assessments of their performance. The inspector considered this a strength.

c. Conclusions

The inspectors concluded the licensee self-assessment activities remain effective. Problems with follow-up and presentation for NQA findings were being adequately addressed. Training on improvements to the Corrective Action System database program was adequate and the new system should be a significant improvement in standardizing the licensee's corrective action efforts and in enabling performance trending. A problem with improper classification of precursor cards was the only notable remaining deficiency with the licensee's corrective action system, but the licensee's oversight was appropriate to quickly

correct the problem prior to restart. An Operations Self Assessment was very thorough and self-critical, focusing extensively on observations of performance in the field. Findings were well organized, tracked for resolution, and valid. The licensee's consistent use of numerous outside organizations and individuals to support self-assessments was considered a strength.

The inspector assessed the licensee's performance, with respect to this restart-related issue, in the five NRC continuing areas of concern:

- Management Oversight - Good
- Engineering Effectiveness - N/A
- Knowledge of the Design Basis - N/A
- Compliance with Regulations - Good
- Operator Performance - Good

O8 Miscellaneous Operations Issues

O8.1 (Closed) VIO 50-302/97-05-01: Failure to Follow Equipment Control Tagging Procedural Requirements (FPC Restart Issue O-12A)

(Closed) VIO 50-302/96-11-03: Personnel Performing Work on Reactor Building Sump Without Logging Onto a Clearance

a. Inspection Scope (92901)

This restart item involved several examples of personnel failing to follow the licensee's clearance tagging procedure. The inspector reviewed the licensee's closure package assembled to address the problem and verified the licensee's corrective actions. The second item was similar to the first item, although it was not classified as a restart issue. The inspector reviewed the adequacy of the licensee's corrective actions to verify the potential for recurrence was minimized.

b. Observations and Findings

The inspector noted that the licensee's closure package did not contain precursor cards to address four of the five violation examples. This was indicative of Operation's poor previous use of the licensee's corrective action system from early in 1997. This problem has generally been corrected and Operations now normally conducts their investigations and develops corrective action plans within the system. The effect of the lack of PCS to develop logical corrective action plans was that the individual corrective actions for each of the examples were scattered and disjointed. Although the inspector did not identify any notable corrective actions that were needed and not implemented, the corrective action plan did not present a coordinated solution to the common problem exhibited in the five examples and was not the direct result of a formal common root cause investigation. However, the inspector concluded the licensee's actions were adequate to address the common problem. The inspector noted several administrative deficiencies with the closure package and with the implementation of two of the corrective actions.

The administrative problems were fixed immediately. The first action deficiency was with the licensee's addition of controlled procedure copy load lists to alternating current (AC) distribution panels. This was done to provide breaker descriptive nomenclature beyond that of the provided labeling, which only listed a breaker number. The inspector noted the licensee did not add the lists to direct current (DC) distribution panels as part of this effort because of the lack of a cabinet door pockets to place the list. The licensee was planning to develop permanent labeling as part of their plant condition upgrade project. The second action deficiency involved a requirement in the clearance procedure to perform a second person verification of clearance tagout adequacy. The inspector noted the requirement was vaguely worded, which could lead to various methods of implementing the second check. The inspector confirmed this by interviewing clearance authors who had varying definitions of the independence required for the second verification. A subsequent problem identified by the licensee (PC 97-7367) with an inadequate clearance that was not detected by the second checker further confirmed the deficiency. This occurred because the second checker utilized the system prints marked incorrectly by the original clearance author and did not independently verify the clearance adequacy. The use of the original author's prints was not prohibited by the licensee's procedure. The licensee had addressed this deficiency in a pending revision to CP-115. The inspector considered this acceptable for closure of the item.

The second open item, VIO 50-302/96-11-03, was similar to the above items in that licensee personnel failed to follow procedural guidance to adequately determine a clearance was necessary. The licensee attributed the cause to weak work controls and planning. The inspector concurred with this assessment and recognized that the licensee has implemented numerous improvements to the work control processes and clearance tagging process which are documented in several 1997 NRC IRs. The licensee also counseled the involved individuals and performed human error reduction training. The inspector considered the noted improvements and corrective actions adequate to close this item.

c. Conclusions

The inspector determined the licensee's corrective actions were adequate to address the causes of the violation examples. Consequently, these violations are closed. However, the inspector noted several deficiencies with the licensee's closure actions that indicated that there was a lack of coordination in response to several examples of a common problem and a lack of a thorough evaluation of the needed corrective action scope.

The inspector assessed the licensee's corrective action performance, with respect to this restart-related issue, in the five NRC continuing areas of concern:

- Management Oversight - Adequate
- Engineering Effectiveness - N/A

- Knowledge of the Design Basis - N/A
- Compliance with Regulations - Adequate
- Operator Performance - Adequate

08.2 (Closed) Operator Workarounds Restart Item (FPC Restart Issue O-7)

a. Inspection Scope (92901)

This item was on the NRC Restart List to verify no further restart items or operability issues were contained in the list. It was initially reviewed in Inspection Report 97-07. The inspector performed a final review of the licensee's closure package and verified the current content of the Workaround List and plans for each item.

b. Observations and Findings

The inspector noted that the number of items on the licensee's list had further decreased from 25 in May of 1997 to 12 in October 1997, although two more items were recently added after another canvassing of the operators. The majority of items were scheduled to be resolved prior to restart, and the licensee's goal was to have less than seven prior to restart. The inspector did not identify any items on the list that were restart or operability concerns not tracked by some other restart issue and noted their goal was achievable. However, after witnessing recent increased management attention to correct air system problems which had been on the Workaround List, the inspector noted that the licensee's list was not controlled or addressed by any procedure. As a result, there was not a requirement to update the list periodically or any guidelines for adequate and timely disposition of the items on the list. The management attention to the air system did not result from its inclusion on the list but from repeated maintenance and operational problems coming to management's attention. The inspector did not consider this a significant concern because the licensee was routinely reviewing the list and driving closure of the other items via the restart process. The licensee had also recognized the concern and had already started developing an Operations Instruction for procedural guidance.

c. Conclusions

The inspector determined the licensee's actions to address items on the Workaround List were good and reflected good management attention and commitment to reduce operator burden. Consequently, this restart item is closed.

The inspector assessed the licensee's corrective action performance, with respect to this restart-related issue, in the five NRC continuing areas of concern:

- Management Oversight - Good
- Engineering Effectiveness - Good
- Knowledge of the Design Basis - N/A

- Compliance with Regulations - Good
- Operator Performance - Good

08.3 (Closed) EA 95-126 VIO II.C: Failure to Ensure Fire Water Storage Tank Contained Adequate Volume of Water

a. Inspection Scope (92901)

This violation involved inadequate translation of design requirements for the fire water storage tank into plant procedures. The licensee responded to this violation in a letter dated September 9, 1996. The inspectors reviewed the implementation of corrective actions in accordance with this response.

b. Observations and Findings

Licensee corrective actions in response to the violation included addressing the specific problems identified by the violation and programmatic improvements for the engineering function. The inspector reviewed the licensee's actions to address discrepancies between the design basis documents, the FSAR, and licensee procedures. Programmatic corrective actions were reviewed in IR 97-07 and found to be adequately completed.

Calculation M97-0054, was approved on August 21, 1997. This calculation was performed to calculate the fire water supply maximum volume analysis, to determine the highest demand for volume of water of an Appendix R fire, which would determine the minimum water storage tank capacity. The calculation concluded that the minimum required water for the Appendix R fire is 230,900 gallons. Licensee procedures require that a minimum of 300,000 gallons be maintained in each fire water storage tank.

Design Change Notice (DCN) 97-0421 was issued on August 21, 1997 to modify plant drawings to revise the indicated capacity of the fire water storage tanks to the 300,000 gallon minimum usable capacity, to agree with the calculated requirements.

The inspector verified that the licensee has revised the Fire Protection Plan to require a minimum of 300,000 gallons of water be available in the fire water storage tanks, consistent with the calculated minimum requirement. Licensee procedures, SP-301, Shutdown Daily Surveillance Log, and SP-300, Operating Daily Surveillance Log, require a minimum of 35.5 feet and 34.5 feet of water, respectively, in the fire storage water tanks. The Tank Level Instrument Loop Inaccuracies calculation, I95-0007, resulted in a minimum required tank level reading of 34.5 feet, including indicator error, corresponding to 300,000 gallons.

c. Conclusions

The inspectors concluded that the licensee's corrective actions have been implemented. The licensee's corrective actions represented

satisfactory resolution to the concerns raised with this specific issue. This issue is closed.

The inspectors assessed the licensee's performance, relative to corrective actions for this violation, in the five areas of continuing NRC concern:

- Management Oversight - Adequate
- Engineering Effectiveness - Good
- Knowledge of Design Basis - Adequate
- Compliance with Regulations - Adequate
- Operator Performance - N/A

II. Maintenance

M2 Maintenance and Material Condition of Facilities and Equipment

M2.1 Control of Maintenance Backlog

a. Inspection Scope (62707)

As discussed in IR 97-13, the licensee has reduced the backlog of corrective maintenance work requests below the target of 200 open on September 13, 1997. Since that time, the licensee has managed to maintain the backlog below the target. A review of the licensee's backlog was performed to assess their continuing efforts.

b. Observations and Findings

The licensee had instituted a reduction effort which has reduced the backlog of corrective maintenance work requests to fewer than 200 open. As of October 20, 1997, there were 199 open work requests, 105 outage work requests and 94 non-outage work requests. Twenty of the open work requests were greater than 24 months old. Of these 20, three need resolution of Requests for Engineering Action (REA) and the rest are scheduled to be completed prior to restart.

A review of the backlog revealed that on October 20, 1997, even though the total maintenance goal had been met, the mechanical and electrical shops were still above their goals. Since September 13, 1997, the electrical shop has met the shop goal, but in the recent past, more work requests were opened than closed for that shop. During the same period, the mechanical shop has not met their goal of less than 80 open work requests. The inspector reviewed the work schedule and determined that the mechanical maintenance shop contained the largest percentage of work requests in the maintenance department, including much of the outage work.

c. Conclusions

Even though the mechanical maintenance and the electrical maintenance shops were not within their goals, both of the shops have greatly

reduced their individual backlogs. In addition, the maintenance department goals were reached in September 1997 and have been maintained since that time. This demonstrated that a sustained improvement in the maintenance management of the work backlog has been achieved.

M2.2 Repeat Maintenance Problems

a. Inspection Scope (62707, 92902)

The inspectors performed a review of repeat maintenance at the site by reviewing PCs on repeat maintenance issue and by reviewing the licensee data base for Work Requests which reference CP-143, Repeat Maintenance Program Identification, Evaluation, and Tracking.

b. Observations and Findings

On October 6, 1997, PC 97-6927 was issued to document that following the reassembly of spent fuel cooling pump SFP-2, the mechanical seal failed upon being returned to service. The pump was disassembled by the licensee, who determined that the seal was cocked on the shaft and the bellows was adhering to the shaft. The carbon rotating face was cracked and misaligned by 90 degrees from its locking tabs in the seal casing.

The inspector reviewed additional PCS that address repeat maintenance issues. PC 97-4239, issued June 17, 1997 and 97-4611, issued June 27, 1997 address problems with SFP-1A maintenance. The first PC addressed that following maintenance on the pump, during the post-maintenance test (PMT), the pump had to be shut down due to noise and vibration. The second PC was written to document that during trouble shooting of the pump, the pump did not rotate smoothly.

An apparent cause was performed on July 29, 1997, for both of these PCs. The apparent cause revealed that during the rebuild of the pump, the technicians were unable to obtain required shaft end play with the bearing to end cover shim installed. The technicians made the decision to remove the end cover shim. During the rebuild, the mechanical seal assembly was installed with a rubber pre-load spacer installed. This spacer should have been removed prior to installation. Initial troubleshooting found that the impeller had contacted the pump casing and that the pre-load spacer had not been removed. The licensee determined that the spacer was not the cause of the noise and vibration. The licensee discovered that excessive shaft end play was the cause of the problem. This was caused by missing bearing end cover shims. Licensee Procedure MP-145, step 4.2.3.2, required that the technicians install the bearing end cover on the shaft with shims to obtain the desired end play. The maintenance technicians installed the end cover shims but could not meet the minimum required end play. The technicians decided to remove the shims, without verifying any dimensions to justify the decision. The technicians did not inform their supervision or engineering of their actions. The licensee determined that a lack of specific instructions in the procedure contributed to the event.

The apparent cause evaluation identified a number of problems with repeat maintenance for pumps during the last 3 years. The inspector also reviewed the licensee data base systems and determined that a number of other issues, including air leaks and valve maintenance, had also occurred involving repeat maintenance. The licensee started an evaluation of the identified repeat maintenance issues. The inspectors will continue to evaluate the maintenance performance in future inspections.

c. Conclusions

The licensee has an identified history of repeat maintenance on certain safety related components. An evaluation was started to identify the causes. The high incidence of repeat maintenance was of concern, since it is an indicator of potential programmatic or personnel issues. The inspectors will continue to monitor the licensee's evaluation and corrective actions.

M3 Maintenance Procedures and Documentation

M3.1 Missed ASME XI Surveillance on Diesel Fuel Oil Transfer Pump

a. Inspection Scope (61726)

The inspector performed an inspection on a licensee identified missed ASME Section XI test on the emergency diesel generator fuel oil transfer pump.

b. Observations and Findings

On September 25, 1997, the licensee issued PC 97-6219, to document that Surveillance Procedure SP-311, Diesel Fuel Transfer Pump Surveillance (DFP-1A, DFP-1B), was not scheduled and performed when required for DFP-1B. The procedure has a performance frequency of quarterly and was last performed on May 23, 1997. That performance was approximately one month prior to the regularly scheduled performance. The licensee failed to reset the next scheduled performance date to account for the early completion, based on the expected normal performance of the surveillance to the scheduled date.

The fuel oil transfer pump is designed to transfer oil from the fuel oil storage tank to the day tank to ensure that the EGDG 1B will be capable of performing its required functions. The licensee considered that the safety function was surveilled using licensee Procedure SP-354B, Monthly Functional Test of the Emergency Diesel Generator EGDG-1B, steps 4.1.6 thru 4.1.8. Procedure SP-311 was used to perform the quarterly ASME Section XI testing requirements for the diesel fuel oil transfer pumps. The ASME Section XI test measures pump vibration and pump flow. A low flow level can render the pump inoperable or, based on a new analysis, a new baseline may be established if the trend in pump degradation will not result in the pump capability degrading below 6.6 gpm before the next scheduled surveillance. The last performance of SP-354B was on

September 6, 1997. This verified that the pump met its safety function when tested. The licensee and the inspector reviewed past performances of SP-311. No signs of performance degradation were noted during these tests.

The licensee elected not to perform SP-311 on DFP-1B until both EDGs are operable. Performance of SP-311 would require declaring the only operable Emergency Diesel Generator inoperable, for the performance of the test. With both diesel generators inoperable, the test would be suspended to restore one to operability. The inspector reviewed the licensee's justification and the Technical Specification requirements and identified no violations associated with the licensee's decision.

c. Conclusions

The scheduling of SP-311 based on an assumption of a scheduled earlier performance, without the ability to recognize whether performance had actually occurred, highlights a weakness in the surveillance scheduling process. Fortuitously, the operability of the component was not challenged by the failure to perform the ASME Section XI testing, as operability had been demonstrated by a separate procedure.

M3.2 Observations of CCHE Tracer Gas Test

a. Inspection Scope (61726, 92902)

The licensee performed tracer gas testing of the Control Complex Habitability Envelope (CCHE) in an effort to quantify air in-leakage for post-accident calculations. The inspector reviewed the procedures and witnessed portions of the testing.

b. Observations and Findings

The inspector reviewed Modification Approval Record (MAR) 97-07-03-01, Test Procedure (TP) 3, MAR Functional Test Procedure for CCHE Tracer Ventilation Test along with licensee memorandums NOE 97-1917 and NOE 97-2112, Control Complex Habitability Envelope Integrated Testing - Test Conditions. The licensee had concluded that it was neither required nor desirable to conduct a Standard Review Plan (SRP) 6.4 type pressurization test due to the uniquely large and non-pressurized configuration of their habitability envelope. A test which placed the Control Complex Emergency Ventilation System in its emergency recirculation mode and measured air exchange using tracer gas (SF_6) techniques was performed instead. The licensee performed three tests between October 6, 1997 and October 17, 1997. The first test was a benchmarking test, the second test was used to quantify in-leakage during a simulated toxic gas release, and the third test measured in-leakage for a design-basis accident (DBA) loss of coolant accident (LOCA) high radiation event. Based on licensee analysis, the limits for the high radiation event are the most limiting.

The October 17, 1997 test was witnessed, in entirety, by the inspector. During that test, the licensee determined that the air in-leakage was approximately 395 cfm at 1/8" water column differential pressure. This was within the limit that the licensee had calculated for maximum allowed radiological dose to the operators, but exceeded the original design basis of 355 cfm. The licensee is preparing a submittal to the NRC to address this difference and their change in methodology.

c. Conclusions

The licensee considers that the tracer gas testing met the acceptance criteria for CCHE in-leakage. However, after discussions with the NRC, it was determined that the design basis in-leakage had been exceeded. A submittal will be made by the licensee to resolve the differences. This issue will be followed as part of the close-out of LER 50-302/97-22-00 and LER 50-302/97-22-01.

III. Engineering

E2 Engineering Support of Facilities and Equipment

E2.1 (Closed) VIO 50-302/96-11-04: Reactor Building Sump not constructed in accordance with approved Construction drawings.

a. Inspection Scope (92903)

This violation involved determinations by the licensee that the reactor building sump installation was not accomplished in accordance with the design drawings. The licensee responded to the violation in a letter dated November 27, 1996. The inspectors reviewed the licensee's corrective actions as stated in the response. The corrective actions, with the exception of addressing discrepancies identified in the extent of condition review and review of surveillance procedures, were inspected and discussed in IR 97-02. This inspection included the review of the remaining open corrective actions.

b. Observations and Findings

The licensee conducted a configuration evaluation on a selected series of safety related structural equipment/component support connections. The evaluation included twenty structures that the licensee determined represented a cross section of mechanical and electrical equipment supports and structural framing members.

The results of the licensee's inspection identified 22 configuration anomalies. The licensee determined that ten of the anomalies were acceptable and 12 were acceptable but recommended correction. Some examples of the acceptable anomalies found were use of slotted holes in connection members when not shown on drawings, slotted holes shown on drawings and not installed in field, members installed in a different orientation than specified in the approved drawings, and details not shown on the drawings. The licensee evaluated the acceptable but

correction recommended anomalies and determined that they posed no risk to the function of the structure. The inspectors reviewed the engineering evaluation and did not identify any deficient items.

The licensee reviewed the surveillance procedure for the reactor building sump, SP-175, Containment Sump Level and Flood Monitoring System Calibration, which implements the surveillance requirement (SR) for TS SR 3.5.2.7, ECCS - Operating. The licensee determined that the TS SR is not intended to verify the as-built condition of the reactor building (RB) sump. The licensee interpreted the TS SR intent as ensuring the RB emergency sump inlets are unrestricted by debris, the racks and screens show no evidence of structural distress, and the racks and screens show no evidence of abnormal corrosion. SP-175 was revised on October 28, 1997 to include additional reactor building sump inspection criteria, such as: ensuring the guide angle welds are in-place, inspecting the screens for corrosion or debris accumulation, and inspecting for structural problems.

c. Conclusions

The inspectors concluded that the licensee's corrective actions have been implemented. The inspectors verified that the corrective actions addressed in the response to the violation have been completed.

The inspectors assessed the licensee's performance, relative to corrective actions for this violation, in the five areas of continuing NRC concern:

- Management Oversight - Adequate
- Engineering Effectiveness - Adequate
- Knowledge of Design Basis - Adequate
- Compliance with Regulations - Adequate
- Operator Performance - N/A

E2.2 MAR Functional Testing of EDG-1A Radiator

a. Inspection Scope (37551, 61726)

The inspectors observed activities associated with the modification approval record (MAR) functional testing of the radiator and building ventilation system replacement on the "A" emergency diesel generator (EDG). The new radiator was installed under MARs 97-05-15-01 and 97-05-15-02 and the diesel building ventilation system was installed under MAR 97-04-03-02. Several pre-job, post-job, and support meetings were attended by the inspectors. A sampling of data gathered from the various tests was reviewed and independently verified by the inspectors.

b. Observations and Findings

A table summarizing the dates, times, and other information for each of the diesel starts is included as an enclosure to this report.

On September 23, 1997, the inspector attended the pre-job briefing for the initial maintenance run of EDG-1A. The briefing, conducted by Operations, was very thorough, and a good questioning attitude was exhibited by those in attendance. One notable safety issue that was extensively addressed was personnel hearing protection. Double hearing protection was required for those people physically located at the diesel generators. In addition, noise meters were attached to individuals that were continuously inside the diesel room or the radiator room during the diesel runs. These meters were frequently checked by roving safety personnel to ensure that no one exceeded their stay time.

Part of the initial maintenance run was to stop the engine by an overspeed trip test. The trip speed recorded (1030 revolutions per minute (rpm)) was slightly below the acceptance criteria listed in Maintenance Procedure (MP) 499, Emergency Diesel Generator Inspection/Maintenance, Revision 11. This was documented in PC 97-6624. Procedure MP-499 was used as part of the MAR functional test (MFT) procedure, and the acceptance criteria listed was 1035 - 1053 rpm. The engine vendor manual also stated an acceptance criteria of 1035 - 1053 rpm. A 1991 Request for Engineering Assistance (REA 91-1641) dispositioned overspeed trip acceptance criteria as 990 - 1053 rpm, however the vendor manual and MP-499 were not updated at that time. The REA further stated that for the style of governor used at Crystal River 3 (fully hydraulic), the acceptance criteria range of 990 - 1053 rpm had been proven acceptable. The reason the vendor manual contained a different acceptance criteria range was because an earlier revision changed the range for a more widely used style of governor (electronic). The vendor manuals were issued generically to all diesel engine customers. The licensee accepted the test results per the REA guidance and initiated precursor card 97-6624 to document the failure to incorporate the REA results in the procedure in a timely manner.

During the first attempt at the 24-hour diesel run, a problem arose with oil pressure indication in the radiator fan right angle gear drive which was documented in PC 97-6643. The assigned operator was taking log readings, as instructed by procedure, when he noticed that pressure gauge DL-31-PI was reading zero. He immediately informed the local test engineer, who was on the phone with the control room test engineer, who then relayed the information to the shift supervisor. The diesel was then ordered to be unloaded and shutdown. At about the same time the diesel was being shutdown, it was discovered that the operator had read the wrong gauge. The gauge that was read was the permanent plant equipment gauge instead of the temporarily installed test gauge, which was located nearby. The permanent gauge was not marked as out of service (OOS), nor was the temporary gauge marked as in use. In addition, the temporary gauge was not a piece of test equipment that was listed in the MFT procedure and, therefore, was not covered in this particular engine run pre-job briefing because the MFT lead test engineer was unaware that this temporary gauge had been installed. System Engineering had requested the installation of the broader range temporary gauge so that the highest oil pressure indication could be

determined during the diesel starts. The installation of the temporary gauge was performed and completed using a work request but was not conveyed to the proper MFT personnel.

An investigation was commenced by the licensee to identify the root cause(s) for the pressure gauge problem. Since this problem surfaced early in the MFT, the licensee thoroughly reviewed the problem to assure themselves that similar delays would be avoided. The licensee identified several short term actions to be completed prior to resuming testing and two long term corrective actions to preclude recurrence. The actions taken were: (1) clearly mark permanent instruments that are OOS; (2) identifying temporary instrumentation and tag for purpose and owner; (3) identifying instrument concerns and generating a list of substitutions and expected variations from normal ranges; (4) searching the schedule for concurrent activities with MFT and ensure compatibility and control of these activities; and (5) marking all MFT instrument changes, temporary additions, or substitutions with white tags.

The next two attempts at the 24-hour diesel run resulted in jacket water gasket leaks. The first leak occurred approximately 30 minutes into the 24-hour run and was due to the catastrophic failure of a jacket water gasket. The second leak occurred approximately five and a half hours into the subsequent 24-hour run attempt and was due to the gasket slipping. This was documented in PC 97-6670. This time the vendor recommended replacement was a full-faced gasket of a different material that would not slip.

The next attempt at the 24-hour run resulted in the quick shutdown of the engine after receipt of the jacket water expansion tank low level alarm. Jacket water pressure remained adequate at 17 pounds per square inch. The low level indication was caused by voids in the jacket water system following draining and filling to repair the two previous jacket water gasket leaks. The voids were released to the expansion tank when an automatic valve opened on the EDG start, lowering level in the expansion tank. After this problem was resolved, the next attempt at the 24-hour run was successfully completed, as was the fast start and load run.

The next issue involved comparisons of engine drive shaft revolutions per minute (rpm) versus radiator fan drive shaft rpm at engine speeds of 500 rpm indicating that excessive clutch slippage was occurring. Slippage can cause excessive frictional heat on the clutch shoes and clutch drum which can ultimately reach a point where clutch damage or accelerated wear can occur. Discussions with the vendor resulted in the licensee determining that clutch slippage was acceptable provided that the amount of time spent operating the engine at speeds of 450 - 500 rpm would be minimal. Current procedures provided for engine operation at 500 rpm for less than five minutes, but this time could be changed at the discretion of the shift supervisor. Nevertheless, procedure revisions were implemented that clearly caution against running the engine at slow speeds for more than ten minutes to maintain reliability of the clutch assembly.

More discussions with the diesel vendor took place when the licensee questioned the horsepower (hp) rating of the new radiator fan drive train assembly during low temperature design limit conditions (15°F). The question was raised when the licensee discovered that the data and subsequent analysis revealed the hp rating was higher than expected (230 vs. 202 hp). The diesel vendor recommended that the radiator fan blade pitch be adjusted so that the air flow would be reduced, thereby reducing the hp rating. The licensee also questioned what component in the drive train was the weakest link. After several meetings and teleconferences, the licensee and vendor determined that the clutch shoes were the weakest link in the drive train assembly. In addition, the clutch vendor recommended that the aluminum shoes be replaced with cast iron shoes to minimize or eliminate clutch slippage. More diesel slow start and loads were performed so additional data could be collected to aid in determining if the radiator fan blade pitch would need adjustment or the clutch shoes would need replacement.

The licensee then discovered that the radiator fan blade pitch could not be adjusted. The fan blade was unknowingly installed in such a manner that the mechanical adjustment was set right at the edge of its index adjustment. The only way to adjust the pitch would have been to disassemble some major portions of the fan. After additional data were gathered and analyzed, the licensee determined that the clutch shoes should be replaced. Several more slow starts with no loading were performed to test the new clutch shoes. The test results were satisfactory, and it was determined that the fan blade pitch adjustment was unnecessary because the new clutch shoes provided an acceptable margin for hp rating.

Because of all the issues and concerns that were raised, the inspectors questioned various licensee personnel on whether a self-assessment was to be performed to ensure lessons learned from the EDG-1A work would get incorporated into the EDG-1B work. The engineering director indicated that several efforts to improve information exchange and technical support, particularly with their EDG vendor, had occurred. Additionally, the licensee conducted a meeting with all involved EDG test personnel to discuss the issues and concerns that had been identified and how they could prevent them from occurring again.

c. Conclusions

Overall, the EDG-1A testing and analysis of the test data appeared sufficient to consider the diesel operable. Due to the issues and concerns that surfaced from the many unexpected delays, the inspectors determined that not having a single point of contact for the EDG-1A maintenance, modification, and testing, made it difficult to obtain an overview of problems and their resolution, and general information on all aspects of the EDG-1A work.

E3 Engineering Procedures and Documentation

E3.1 Procedure Review For MAR 96-11-02-01, High Pressure Injection Recirculation to the Reactor Building Sump (37551)

On September 29, 1997 the licensee identified in PC 97-6710, that the engineering personnel assigned to review the Modification/PEERE Procedure Review Sheets for MAR 96-11-02-01, High Pressure Injection Recirculation to the Reactor Building Sump, did not identify several departmental procedures for revision. The procedures not identified dealt with the leakrate testing program and containment isolation surveillances, even though these procedures had been previously identified as needing revision during the MAR development process.

This review was conducted to assure that all procedures controlled by the various departments had been identified and were in the revision process. However, the individuals performing the reviews for the ISI and NPTS sections only reviewed procedures that they were directly responsible for and not all the procedures controlled by the departments, as was intended.

The licensee identified the problem during the second review of the package, prior to final closure of the MAR. The licensee took prompt actions, assuring that the needed revisions were initiated. The responsible engineering personnel were counseled and were tasked with conducting training to the engineering department on the issue.

The inspector reviewed the issue and assured that administrative procedures were in place to adequately require procedure reviews, but that the requirements had not been rigorously implemented. The lack of understanding by the engineering personnel and the lack of a thorough review indicated that weaknesses still existed among licensee personnel for implementation of the various processes which control safety related systems.

E8 Miscellaneous Engineering Issues

E8.1 (Closed) URI 50-302/96-201-04: Nonsafety-Related Positioners on Safety-Related Valves

a. Inspection Scope (92903)

This URI involved a concern identified by the NRC during the Integrated Performance Assessment Process (IPAP) inspection, where safety-related air operated valves (DCV-17, DCV-18, DCV-177, and DCV-178) used to control cooling water flow to the decay heat removal heat exchangers were connected to nonsafety-related positioners. The inspector had previously followed up on the licensee's corrective actions for this item as documented in NRC inspection reports (IR) 50-302/97-01, 97-07, and 97-11.

b. Observations and Findings

The licensee's corrective actions were documented in problem report (PR) 96-0220. Resolution of this issue was being tracked as licensee Restart Issues D-10, D-10A, and R-7. The inspector reviewed the corrective actions that had been implemented to address this item. The inspector reviewed these corrective actions for compliance with the FSAR, TS, licensee topical design basis document (TDBD), and design control procedures.

The inspector noted that the licensee had implemented modification approval record (MAR) 94-09-02-01, DC Cooling Instrument Enhancement, to address this issue. This MAR addressed the NRC's concern regarding the nonsafety-related positioners on Valves DCV-17, DCV-18, DCV-177, and DCV-178.

As discussed in the IPAP Inspection Report 50-302/96-201 (Appendix C, paragraph 3.1.5), the IPAP team questioned the design criteria in the Crystal River Unit 3 Topical Design Basis Document for the Single Failure Criteria, Revision 1, dated April 25, 1994. The inspector reviewed the TDBD and noted that the IPAP team questioned the applicability of the criteria included in the TDBD for single failure of nonsafety-related components. The TDBD stated that failure frequencies less than 1x 10E-6 should not be considered as credible. During further followup, the inspectors reviewed the licensee's documentation which provided the basis for the single failure criterion for nonsafety-related components contained in the TDBD. The inspectors held discussions with licensee personnel and raised questions regarding inconsistencies in the methodology used by the licensee in determining the failure frequency for nonsafety-related components. Licensee personnel indicated that the Single Failure Criteria for Nonsafety-Related Components contained in the TDBD would be reviewed to determine if additional clarification was needed. During this current inspection, the inspector noted that the licensee had revised the Single Failure Criteria for Nonsafety Related Components contained in the TDBD. This revision provided additional clarification on how to determine failure frequency in use of the criteria. The inspector further noted that all of the corrective actions specified in PR 96-0220 and restart items D-10, D-10A, and R-7 had been completed. This item is closed.

c. Conclusions

The inspector concluded that the licensee had taken satisfactory corrective actions to address this issue. This URI is closed.

The inspector assessed the licensee's performance, with respect to this issue, in the five areas of continuing NRC concern.

- Management Oversight - Good
- Engineering Effectiveness - N/A
- Knowledge of the Design Basis - N/A

- Compliance with Regulations - Good
- Operator Performance - N/A

E8.2 Followup on Precursor Card (PC) Resolution for Waste Disposal System Piping

a. Inspection Scope (92903)

The inspector followed up on the status of the evaluation and resolution for PC 97-1515. The evaluation was performed by Nuclear Operations Engineering (NOE). This PC was reviewed previously by the NRC and documented in NRC IR 50-302/97-07. The NRC concluded from the previous review that the NOE Suspected Design Basis Issue (SDBI) evaluation performed for PC 97-1515 was of poor quality and lacked sufficient technical justification to support the conclusion that there was not a reportable design basis issue (DBI). The NOE evaluation included incomplete determinations of the licensing and design bases and incorrect interpretations of NRC regulations.

b. Observations and Findings

During this current review of PC 97-1515 the inspector held discussions with licensee personnel and reviewed the radioactive waste disposal system (WDS) piping for compliance with the Final Safety Analysis Report (FSAR), the Enhanced Design Basis Document (EDBD), and licensee design drawings. The inspector noted that PC 97-1515 identified that various WDS components were not installed in accordance with the seismic design basis requirements described in FSAR Section 5.1.1.1 and the EDBD. The NOE evaluation and response to PC 97-1515 stated that the details, as described in the PC, were correct. The licensee initiated Restart Issue number D-51A , Seismic Classification Discrepancies Found in the FSAR and EDBD for the Waste Disposal System, to track the actions associated with resolution of this issue. This restart issue also stated that, in performing the SDBI determination associated with PC 97-1515, it was confirmed that the conditions specified in the PC were correct. The inspector made the following observations during this current review of PC 97-1515:

(1) FSAR Section 5.1.1.1 stated in part, that those structures, components, and systems, whose failure might cause or result in an uncontrolled release of radioactivity, were designated Seismic Class I. FSAR Section 5.1.1.1.i further stated that the liquid outlet piping for 14 WDS tanks (to and including the second isolation valve downstream from each of the tanks and the process piping associated with the reactor coolant drain tank) was designated Seismic Class I. The EDBD also described the liquid outlet piping as being designed Seismic Class I. The WDS tanks were installed Seismic Class I, but the associated liquid outlet piping for six of the fourteen tanks was designed and installed Seismic Class III instead of Seismic Class I. The six tanks with Seismic Class III liquid outlet piping were the miscellaneous waste storage tank, reactor coolant drain tank, three waste gas

decay tanks, and the spent resin storage tank. The inspector noted that the liquid outlet piping for these six WDS tanks was shown on FSAR Figures 11-1 and 11-3 as being designed Seismic Class III. Design drawings FD-302-681 and FD-302-691 also showed the WDS liquid outlet piping as Seismic Class III. The inspector discussed this item with licensee personnel and noted that, even though the liquid outlet piping was shown in the above FSAR figures and design drawings as Seismic Class III, this designation was not in compliance with the seismic design basis description stated in FSAR Section 5.1.1.1. The inspector further noted that the WDS Seismic Class III liquid outlet piping was original installation.

The inspector concluded that the WDS liquid outlet piping was not designed in accordance with the seismic design basis description in FSAR Section 5.1.1.1. The design drawings and the installed WDS liquid outlet piping have never matched the FSAR seismic design basis description. The inspector informed the licensee that failure to design and install the WDS liquid outlet piping in accordance with the seismic design basis description in the FSAR constituted a violation of 10 CFR 50, Appendix B, Criterion III. This issue will be identified as the second example of VIO 50-302/97-16-03, Failure to Design and Install Radioactive Waste Disposal System Piping as Described in the FSAR.

(2) During further review of PC 97-1515, the inspector noted that the PC identified that the waste gas decay tanks (WGDT) and the associated gas outlet piping to and including the second isolation valve were required to be designed Seismic Class I (per the seismic design basis description in FSAR Section 5.1.1.1 and the EDBD). The WGDTs were designed and installed Seismic Class I, but the associated gas outlet piping was designed and installed Seismic Class III instead of Seismic Class I. This piping (which was original installation) was shown on FSAR Figure 11-3 and design drawing FD-302-691 as Seismic Class III, but, as stated above, this Seismic Class III designation was not in compliance with the design basis description in FSAR Section 5.1.1.1.

The inspector concluded that the WGDT gas outlet piping was not designed in accordance with the seismic design basis description in FSAR Section 5.1.1.1. The design drawings and the installed WGDT gas outlet piping have never matched the FSAR seismic design basis description. The inspector informed the licensee that failure to design and install the WGDT gas outlet piping in accordance with the seismic design basis description in the FSAR constituted a violation of 10 CFR 50, Appendix B, Criterion III. This issue will be identified as the first example of VIO 50-302/97-16-03, Failure to Design and Install Radioactive Waste Disposal System Piping as Described in the FSAR.

(3) FSAR Figures 11-1 and 11-3 and licensee design drawings (FD-302-681 and FD-302-691) indicated that the classification break points

for the Seismic Class I WDS tanks and the associated Seismic III gas and liquid outlet piping occur at the tank penetrations. The inspector discussed this item with NOE personnel and questioned the acceptability of the classification break points occurring at the penetrations for the WDS tanks. The inspector also asked NOE personnel if these WDS seismic class breaks had been included in the inservice inspection and seismic class break extent of condition review that was performed as part of the corrective actions in response to NRC violation 50-302/96-06-06 (FPC letter 3F0597-27 to the NRC dated May 20, 1997). The inspector determined from the discussions with NOE that the classification breaks for the Seismic Class I WDS tanks and the Seismic Class III gas and liquid outlet piping had not been evaluated by NOE for acceptability to determine if the class breaks met design basis requirements.

The inspector concluded that there was a weakness in the corrective actions for VIO 96-06-06 in that the extent of condition review did not include all of the WDS tanks and associated piping. During the inspection exit meeting, licensee management indicated that the scope for the seismic class break extent of condition review would be expanded to include the WDS tanks and associated piping which had not been evaluated.

(4) The inspector noted that the licensee stated in its 10 CFR 50.54(f) response (FPC letter 3F0297-01 to the NRC dated February 8, 1997) that a 10 CFR 50.59 safety evaluation was required when a non-conforming condition conflicted with the FSAR description and the condition was not corrected for an extended period of time. The licensee's response further stated that Compliance Procedure (CP)-111, Processing of Precursor Cards for Corrective Action Program, required that the degraded or non-conforming condition required a 10 CFR 50.59 safety evaluation if it was not fixed within 90 days. Precursor card 97-1515 was written March 17, 1997, describing the WDS FSAR discrepancies. As of October 24, 1997, the discrepancies had not been fixed and a 10 CFR 50.59 had not been performed.

The inspector concluded that failure to perform the 10 CFR 50.59 within 90 days as required by procedure CP-111 was a violation of 10 CFR 50, Appendix B, Criterion V. The inspector informed the licensee that this item will be identified as VIO 50-302/97-16-04, Failure to Follow Procedure CP-111 by not Performing a 10 CFR 50.59 Safety Evaluation Within 90 Days After Identification of a Non-conforming Condition Which Conflicted with the FSAR Description.

(5) The NOE evaluation and response for PC 97-1515 indicated that the lack of seismic design for the waste gas piping associated with the WGDTs did not constitute a DBI provided the radioactivity limit in each WGDT was maintained less than or equal to 39,000 Curies (Ci). The inspector noted that Section 2.17 of the Offsite

Dose Calculation Manual (ODCM) specified that the quantity of radioactivity contained in each WGDT shall be limited to less than or equal to 39,000 Ci (considered as Xenon 133). ODCM Section 2.17.1 specified the surveillance requirements for the WGDTs, which stated that the quantity of radioactive material contained in each WGDT shall be determined to be within the 39,000 Ci limit at least once per seven days whenever radioactive materials were being added to the tanks, and at least once per 24 hours during primary coolant system degassing operations.

The inspector further noted that ODCM specification 2.17 and the associated surveillance requirement 2.17.1 were originally included in the CR-3 TS as specification 3.7.13.1 and surveillance requirement 4.7.13.1, respectively. The NRC stated in its review and approval of the original TS and associated surveillance requirement (NRC Safety Evaluation Report (SER) dated June 27, 1984, and referenced Technical Evaluation Report EGG-PHYS-6171), that this surveillance was acceptable since the WGDT was sampled at the frequency required during degassing which was the time that had the greatest potential for exceeding the dose limit. This TS and associated surveillance requirement were relocated in their entirety from the CR-3 TS to the ODCM when the Radiological Effluents Technical Specifications (RETS) were relocated from the TS to the ODCM when the NRC issued TS Amendment 141 (dated May 4, 1992) to the CR-3 operating license.

Licensee Surveillance Procedure (SP)-730, Explosive Gas and Storage Tank Monitoring Chemistry Surveillance Program, implemented the WGDT surveillance requirementsspecified in the ODCM. Per SP-730, the licensee was sampling the makeup tank (MUT) in order to satisfy the ODCM surveillance requirement for determining the radioactivity in each WGDT. The SP indicated that the MUT was being sampled to determine the radioactivity in the WGDTs because the MUT was the principle and considered the most concentrated addition to the WGDTs. The licensee concluded that it could be determined that the WGDT radioactivity limit would remain below 39,000 Ci if the MUT concentration remained below 122 micro-curies per cubic centimeter. The inspector discussed this issue with licensee personnel and the following questions were raised:

- The inspector questioned whether sampling the MUT instead of the WGDTs complied with the surveillance requirement 2.17.1 in the ODCM. The ODCM indicated that the WGDTs would be sampled. The inspector also questioned when the change in sampling location occurred.

- The inspector questioned whether there was a 10 CFR 50.59 safety evaluation to support the change for sampling the MUT as the means for determining the radioactivity in the WGDTs.

After discussing this issue with licensee personnel, the inspector

concluded that this issue was a violation of NRC requirements. The inspector informed the licensee that this issue would be identified as VIO 50-302/97-16-05, Compliance with the ODCM Surveillance Requirements for the WGDTs.

c. Conclusions

The inspector made the following conclusions based on reviewing the status of the licensee's evaluation and resolution for PC 97-1515:

- The inspector concluded that the WDS liquid outlet piping was not designed in accordance with the seismic design basis description in FSAR Section 5.1.1.1. The design drawings and the installed WDS liquid outlet piping have never matched the FSAR seismic design basis description.

- The inspector concluded that the WGDT gas outlet piping was not designed in accordance with the seismic design basis description in FSAR Section 5.1.1.1. The design drawings and the installed WGDT gas outlet piping have never matched the FSAR seismic design basis description.

- The inspector concluded that there was a weakness in the licensee's corrective actions for VIO 96-06-06 in that the extent of condition review did not include evaluating the seismic class breaks for all of the WDS tanks and associated piping.

- The inspector concluded that the licensee failed to follow Compliance Procedure CP-111 in that a 10 CFR 50.59 safety evaluation was not performed within 90 days after identification of a non-conforming condition (Waste Disposal System FSAR Discrepancies) which conflicted with the FSAR description. This item was identified as a violation.

- The inspector concluded that the licensee's sampling of the MUT instead of the WGDTs in order to determine the radioactivity in the WGDTs did not comply with TS 5.6.2.3 and the surveillance requirements specified in the ODCM Section 2.17.1. This item was identified as a violation.

The inspector assessed the licensee's performance, relative to this issue, in the five areas of continuing NRC concern:

- Management Oversight - Inadequate
- Engineering Effectiveness - Inadequate
- Knowledge of the Design Basis - Inadequate
- Compliance with Regulations - Inadequate
- Operator Performance - N/A

E8.3 (Closed) URI 50-302/96-201-01: Long term plant cool down following a small break LOCA assuming a single failure in the decay heat drop line

a. Inspection Scope (37551)

The licensee submitted a letter dated May 13, 1997 to address the results of a hydraulic evaluation for the decay heat pump, in response to the URI. The inspector and NRR personnel reviewed the results of the testing and resulting submittal.

b. Observations and Findings

In July 1996, an Integrated Performance Assessment Process inspection was performed. URI 50-302/96-201-01 identified that a single failure, such as the loss of an emergency diesel generator, could result in the loss of electrical power to one decay heat pump and the inability to successfully open the decay heat drop line. This would result in a mission time on the remaining decay heat pump on recirculation flow to exceed the 10-hour maximum analyzed time. To resolve the issue, the licensee performed an extended low-flow endurance test to verify the low flow performance of the decay heat pumps.

In a letter dated May 13, 1997, the licensee submitted a test report to provide information necessary to close the URI. The pump used in the test was a spare decay heat pump identical to the installed pumps at the site. The purpose of the testing was to perform low flow testing, at approximately 100 gpm. The testing consisted of a pre-test inspection of the pump, baseline performance testing, a 30 day low flow test, an eight hour flow rangeability test to determine minimum continuous stable flow (MCSF), and post-test pump inspection.

Prior to the test, the pump was inspected and critical components measured and compared to vendor drawings. The wear ring bores and the stuffing box pilot fit to the casing were determined to be 0.005" undersized. The licensee and vendor determined that these discrepancies would not have any significant effect on the test results, since the configuration was a more rigid test because the rotating element of the pump would contact the wear ring more easily.

Performance data, including tank level, suction temperature, discharge pressure, differential pressure, bearing housing temperature, and approximate pump mechanical seal leakage, was collected at two-hour intervals during the 30 day test. Pre and post test performance curves plotted total developed head, efficiency, and brake horsepower as a function of pump flow rate. Vibration measurements were performed using the licensee's test equipment and included unfiltered and filtered vibration in ips and pump spectral data. Flow rangeability testing was performed at flow rates from 500 gpm to 4680 gpm to determine the MCSF. The vendor concluded that the pump could operate from 100 gpm to 1200 gpm for up to one year after which the pump rotor must be refurbished. Post test inspection of the pump, did not provide any indication of abnormal pump degradation.

In a letter dated October 1, 1997, the NRC documented the results of the review of the test report.

c. Conclusions

On the basis on the review of the licensee's test report, the NRC concluded that the test demonstrated the ability of the decay heat pumps to operate at flow conditions of 100 gpm for 30 days. This time bounds the expected mission time for operation of the decay heat removal pump during a SBLOCA. Consequently, this URI is closed.

The inspectors assessed the licensee's performance relative to corrective actions for this violation, in the five areas of continuing NRC concern:

- Management Oversight - Good
- Engineering Effectiveness - Good
- Knowledge of Design Basis - Adequate
- Compliance with Regulations - Good
- Operator Performance - N/A

IV. Plant Support

R1 Radiological Protection and Chemistry (RP&C) Controls

R1.1 Control of Radiologically Controlled Area (RCA) Access Associated with EDG Radiator Work (71750)

To support significant work activities associated with replacing the EDG radiators, the licensee's Health Physics (HP) organization coordinated with the Operations and Maintenance departments and removed the EDG rooms from the RCA in August. Although these rooms were located in the Auxiliary Building, access was open to them from the outside due to removal of the radiator missile shield. Personnel could then access the rooms without entering the Auxiliary Building and having to process through the RCA. This evolution was coordinated and performed well and no problems were encountered. However, several subsequent RCA control problems occurred which were discussed in IR 50-302/97-13. These were associated with incidents of uncontrolled radioactive material found outside the RCA and improper control of a high radiation area. In late-September 1997, at the same time the main RCA access point was moved from its normal location to a temporary building to support control complex ventilation testing, the missile shield for the A EDG was replaced, ending access to the EDG rooms from the outside. The modification personnel had been conditioned to entering the EDG room without the need to consider HP requirements. Now they had to enter the Auxiliary building and process through the RCA, and then leave the RCA to enter the EDG rooms which remained out of the RCA. The impact of this change was not well anticipated by the HP department and further problems with inaccurate RCA signs, improper frisking, and release of

materials occurred. PC 97-6777 was one example where a contaminated hand pump was found in the EDG rooms after inadvertently being removed from the RCA. The HP department reaction to each of these problems was good, but the inspector determined they should have anticipated the problems the change would cause and planned for them in advance. For example, an HP technician was not stationed at the RCA entry and exit point to the EDG rooms until after numerous problems had occurred. The previous problems with RCA material control should have alerted the HP department to the potential for further problems that altering the RCA access was likely to initiate. The inspectors considered the poor anticipation and planning for the problems with RCA access associated with the EDG rooms a weakness.

S1 Conduct of Security and Safeguards Activities

S1.1 Inappropriate Security Escort Policy (71750)

On October 6, 1997, an inspector observed an individual allowing a second individual to pass through a security door into a vital area without appropriately badging through the door card reader. The second individual did this by assuming escort responsibility for the first individual to assist him in troubleshooting his inability to badge through the outer card reader. The inspector was concerned because the incident had the appearance of tailgating, and it was not obvious if the first individual was cleared to be in the vital area. The licensee's investigation revealed that the individual was cleared for the vital area but that his security badge had malfunctioned. The licensee's security procedures allowed a cleared individual to assume escort responsibility and grant passage to a higher security area to an uncleared individual without notifying security or obtaining any approval. The inspector determined this practice bypassed necessary security controls for vital area access and verification of personnel locations for accountability in an emergency. Although security shift management did not recognize this as a problem, the Security Manager did and implemented a change to Security Procedure SS-207, Plant Entry and Exit Requirements, revision 16, which required Security to be notified prior to allowing an uncleared individual in to or out of a Vital Area. The licensee also promulgated guidance that Security was to be immediately notified for any lost or malfunctioning badge incidents. The inspector considered these actions appropriate. The incident witnessed by the inspector did not violate any requirements but it served to identify a poor practice with the licensee's escort policy.

S1.2 Inattentive Security Officer

a. Inspection Scope (71750)

On September 23, upon leaving the radiological access control area (RCA) in the maintenance storage building near the emergency feedwater tank (EFT-2), the inspector discovered what appeared to be an inattentive security guard.

b. Observations and Findings

When exiting the maintenance storage building (MSB) door, directly to the right is the EFT-2 access door. This has been a security compensatory posted door since September 16, 1997, when a precursor card generated by quality assurance questioned why EFT-2 should not be treated as a vital area. The issue of whether EFT-2 should be a vital area was still being resolved, but meanwhile, security decided conservatively to post the area.

Upon exiting the MSB, the inspector observed a nuclear security officer (NSO) leaning back in a chair, with his head tilted to the side, and his mouth open. The inspector was unable to observe the NSO's eyes due to the sunglasses the NSO was wearing. When the inspector closed the door to the MSB upon exiting, the NSO was observed to slowly bring his head upright while closing his mouth and then nodding his head to acknowledge the inspector. From the time the inspector first observed the NSO in a relaxed position to the time the NSO became aware of the inspector's presence, approximately five to seven seconds had elapsed.

The inspector discussed the incident with the security lieutenant on duty. The inspector revealed to the lieutenant that it was difficult to determine the NSO's attentiveness since it was impossible to see his eyes. Nevertheless, the lieutenant indicated that he would look into the matter. The following day, the inspector was approached by the lieutenant and asked to review the security event report to ensure that what the inspector said was captured correctly. The inspector did not identify any deficiencies with the licensee's report. The same NSO had been counseled earlier that day regarding his relaxed posture being construed as inattentiveness. After further investigation by the licensee, firm disciplinary action was taken against the NSO based on insubordination for his continued inattentive appearance after being directed to avoid such a situation.

c. Conclusions

The inspectors consider this to be an isolated incident and considered the licensee's response an aggressive resolution to the problem.

V. Management Meetings

X1 Exit Meeting Summary

The inspection scope and findings were summarized on October 27, 1997. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

X3 Management Meeting Summary

X3.1 A meeting was held on September 25, 1997 at the FPC Training Center in Crystal River to discuss the status of actions to resolve technical issues and the licensee's progress toward readiness for restart. A separate meeting summary was issued on October 22, 1997.

PARTIAL LIST OF PERSONS CONTACTED

Licensees

R. Anderson, Senior Vice President, Nuclear Operations
J. Baumstark, Director, Quality Programs
J. Cowan, Vice President, Nuclear Production
R. Davis, Assistant Plant Director, Operations and Chemistry
R. Grazio, Director, Nuclear Regulatory Affairs
G. Halnon, Assistant Plant Director, Nuclear Safety
B. Hickle, Director, Restart
J. Holden, Director, Site Nuclear Operations
D. Kunsemiller, Manager, Nuclear Licensing
M. Marano, Director, Nuclear Site & Business Support
C. Pardee, Director, Nuclear Plant Operations
W. Pike, Manager, Nuclear Regulatory Compliance
M. Rencheck, Director, Nuclear Engineering
M. Schiavoni, Assistant Plant Director, Maintenance
T. Taylor, Director, Nuclear Operations Training

NRC

J. Jaudon, Director, Division of Reactor Safety, Region II (October 23 - 24, 1997)
K. Landis, Branch Chief, Region II (October 24, 1997)
M. Thomas, Reactor Inspector, Region II (October 20 - 24, 1997)

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: Conduct of Maintenance
IP 71707: Plant Operations
IP 71750: Plant Support Activities
IP 92700: Onsite Followup of Written Reports of Nonroutine Events at Power Reactor Facilities
IP 92901: Followup - Operations
IP 92902: Followup - Maintenance
IP 92903: Followup - Engineering
IP 92904: Followup - Plant Support

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

Type	Item Number	Status	Description and Reference
VIO	50-302/97-16-03	Open	Failure to Design and Install Radioactive waste Disposal System Piping as Described in the FSAR. (Section E8.2)

VIO	50-302/97-16-04	Open	Failure to Follow Procedure CP-111 by not Performing a 10 CFR 50.59 Safety Evaluation Within 90 Days After Identification of a Non-conforming Condition Which Conflicted with the FSAR Description. (Section E8.2)
VIO	50-302/97-16-05	Open	Compliance with the ODCM Surveillance Requirements for the WGDTs. (Section E8.2)

Closed

Type	Item Number	Status	Description and Reference
NCV	50-302/97-16-01	Closed	Failure to Follow Operations rocedures. (Section O1.3)
NCV	50-302/97-16-02	Closed	Incorrect Revisions Filed in Control Room Technical Specifications. (Section O3.1)
VIO	50-302/97-05-01	Closed	Failure to Follow Equipment Control Tagging Procedural Requirements. (Section O8.1)
VIO	50-302/96-11-03	Closed	Personnel Performing Work on Reactor Building Sump Without Logging Onto a Clearance. (Section O8.1)
VIO	EA 95-126 II.C	Closed	Failure to Ensure Fire Water Storage Tank Contained Adequate Volume of Water. (Section O8.3)
VIO	50-302/96-11-04	Closed	Reactor Building Sump not Constructed in Accordance with Approved Construction Drawings. (Section E2.1)
URI	50-302/96-201-04	Closed	Nonsafety-Related Positioners on Safety-Related Valves. (Section E8.1)
URI	50-302/96-201-01	Closed	Long Term Plant Cool Down Following a Small Break LOCA Assuming a Single Failure in the Decay Heat Drop Line. (Section E8.3)

LIST OF ACRONYMS USED

AI - Administrative Instruction
AP - Abnormal Procedures
AR - Air Removal
BAST - Boric Acid Storage Tank
CARB - Corrective Action Review Board

CCHE - Control Complex Habitability Envelope
CFR - Code of Federal Regulations
CFT - Core Flood Tank
Ci - Curies
CREVS - Control Room Emergency Ventilation System
CR3 - Crystal River Unit 3
CT - Current Transformers
DBD - Design Basis Document
DBI - Design Basis Issue
DH - Decay Heat
DHP - Decay Heat Pump
DHV - Decay Heat Valve
DNPO - Director, Nuclear Plant Operations
EA - Enforcement Action
ECCS - Emergency Core Cooling System
EDBD - Enhanced Design Basis Document
EDG - Emergency Diesel Generator
EEI - Escalation Enforcement Item
EFIC - Emergency Feedwater Initiation and Control
EFW - Emergency Feedwater
ES - Engineered Safeguards
ESQPM - Environmental and Seismic Qualification Program Manual
FLA - Full Load Amperes
FLUR - First Level Undervoltage Relays
FME - Foreign Material Exclusion
FPC - Florida Power Corporation
FSAR - Final Safety Analysis Report
FSP - Fire Service Pump
FTI - Framatome Technologies, Inc.
GL - Generic Letter
HPI - High Pressure Injection
HVAC - Heating Ventilation and Air Conditioning
I&C - Instrumentation and Control
IFI - Inspection Followup Item
IPAP - Integrated Performance Assessment Process
IR - Inspection Report
ISA - Instrument Society of America
ISI - Inservice Inspection
Kw - Kilowatts
LER - Licensee Event Report
LOCA - Loss of Coolant Accident
LOOP - Loss of Offsite Power
LPI - Low Pressure Injection
MAR - Modification Approval Record
MCAP - Management Corrective Action Plan
MSLB - Main Steamline Break
MUT - Makeup Tank
MUV - Make-up Valve
NCV - Non-cited Violation
NEP - Nuclear Engineering Procedure
NGRC - Nuclear General Review Committee
NOE - Nuclear Operations and Engineering

NOTES - Nuclear Operations Tracking and Expediting System
NOV - Notice of Violation
NPSH - Net Positive Suction Head
NP&SM - Nuclear Procurement and Storage Manual
NQA - Nuclear Quality Assessments
NRC - Nuclear Regulatory Commission
NRR - Office of Nuclear Reactor Regulation
OCR - Operability Concerns Resolution
ODCM - Offsite Dose Calculation Manual
OI - Operating Instruction
OJT - On The Job Training
OP - Operating Procedure
PC - Precursor Card
PM - Preventive Maintenance
PMRG - Plant Modification Review Group
PMT - Post Maintenance Test
PORV - Power Operated Relief Valve
PR - Problem Report
PRC - Plant Review Committee
PT - Liquid Penetrant Test
RCA - Radiologically Controlled Area
RCBT - Reactor Coolant Bleed Tanks
RCP - Reactor Coolant Pump
RCS - Reactor Coolant System
REA - Request for Engineering Assistance
RG - Regulatory Guide
RP&C - Radiological Protection and Chemistry
SBLOCA - Small Break Loss of Coolant Accident
SDBI - Suspected Design Basis Issue
SEL - Security Event Log
SIR - Security Information Reports
SLUR - Second Level Undervoltage Relays
SM - Shift Manager
SP - Surveillance Procedure
SR - Surveillance Requirement
SRO - Senior Reactor Operator
SSC - System, Structure or Component
SSOD - Shift Supervisor on Duty
TC - Temporary Change
TDBD - Topical Design Basis Document
TS - Technical Specification
URI - Unresolved Item
VIO - Violation
WDS - Waste Disposal System
WGDT - Waste Gas Decay Tank
WI - Work Instructions
WR - Work Request
WSI - Welding Services, Inc.

EDG "A" TESTING SUMMARY

#	Type of Run	Start Date/Time	Stop Date/Time	Parameter(s) of Interest
1	Unloaded maintenance run; slow start with incremental increase in speed	9-23-97, 4:02pm	9-23-97, 4:57pm approx. 30 min-ute duration	leakage - if major leakage, repair & repeat maint. run; stop engine w/ overspeed trip test
2	Slow start and load (2625 to 2825 kW)	9-24-97, 2:12pm	9-24-97, 4:52pm approx. 2-3 hours duration	radiator data - flow & dp to determine if fan blade pitch adjustment necessary
3	Slow start and load (2625 to 2825 kW)	9 [illegible] 97, 5:10am	9-25-97, 6:45am approx. 24+ hours duration	secured engine because of low oil pressure indication in radiator fan right angle gear drive
4	Slow start and load (2625 to 2825 kW)	9-25-97, 10:43pm	9-25-97, 11:11pm approx. 24+ hours duration	secured engine because of jacket water gasket leak
5	Slow start and load (2625 to 2825 kW)	9-26-97, 1:38pm	9-26-97, 7:14pm approx. 24+ hours duration	secured engine because of jacket water gasket leak
6	Slow start and load (2625 to 2825 kW)	9-27-97, 9:33am	9-27-97, 9:48am approx. 24+ hours duration	secured engine because of low level indication in jacket water surge tank
7	Slow start and load (2625 to 2825 kW)	9-27-97, 12:51pm	9-28-97, 2:34pm approx. 24+ hours duration	radiator data - flow & dp; ventilation fan data - dual/ single fan, clean/dirty filter
8	Fast start and load (2625 to 2825 kW)	9-28-97, 9:47pm	9-29-97, 2:53am approx. 1-4 hours duration	radiator data - flow & dp; room ventilation data; modified missile shield
9	Slow start and load (2625 to 2825 kW)	10-1-97, 5:11am	10-1-97, 12:40pm	radiator data - flow & dp; room ventilation data
10	Slow start and load (2625 to 2825 kW)	10-2-97, 2:50am	10-2-97, 9:50am	radiator data - flow & dp; room ventilation data
11	Slow start, no load using OP-707	10-4-97, 1:23am	10-4-97, 1:38am	clutch slippage - @700rpm, slipping at 150rpm delta
12	Slow start, no load using OP-707	10-4-97, 2:07am	10-4-97, 2:18am	clutch slippage - @800rpm, slipping at 100rpm delta

13	Slow start, no load using OP-707	10-4-97, 2:48am	10-4-97, 3:08am	clutch slippage - @900rpm, no slipping
14	Fast start and load (2625 to 2825 kW) using SP-354A	10-4-97, 5:45am	10-4-97, 10:45am	normal operational parameters