U.S. NUCLEAR REGULATORY COMMISSION

REGION 2

Docket No:	50-302
License No:	DPR-72
Report No:	50-302/96-09
Licensee:	Florida Power Corporation
Facility:	Crystal River 3 Nuclear Station
Location:	15760 West Power Line Street Crystal River, FL 34428-6708
Dates:	August 11, 1996 - September 7, 1996
Inspectors:	R. Butcher, Senior Resident Inspector T. Cooper, Resident Inspector S. Cahill, Resident Inspector W. Bearden, Reactor Inspector, paragraph O8.1 B. Crowley, Reactor Inspector, paragraphs E8.1, E8.2, R8.1, X1.1 R. Gibbs, Reactor Inspector, paragraph O8.1 E. Girard, Reactor Inspector, paragraphs E8.3, E8.4
Approved by:	K. Landis, Chief, Projects Branch 3 Division of Reactor Projects

EXECUTIVE SUMMARY

Crystal River 3 Nuclear Station
NRC Inspection Report 50-302/96-09

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

Operations

Several power reductions occurred as a result of secondary side equipment problems. This reflects a continuing trend of poor unit performance due to secondary side equipment problems as previously noted in Inspection Report 50-302/96-05. (paragraphs O2.1 - O2.4)

The Employee Concerns Program was reviewed, and found to be effective and adequate for the Crystal River site. (paragraph O8.1)

Maintenance

A Violation (50-302/96-09-01) was identified for failure to follow a procedure, resulting in the inadvertent initiation of the control room emergency ventilation system. (paragraph M1.1)

Engineering

A Violation (50-302/96-09-04) was identified for failure to update plant operating curves to reflect a power uprate that occurred in 1981. (paragraph E8.1)

A Violation (50-302/96-09-05) was identified for failure to incorporate a design change in the operation of Makeup System valve MUV-64 into operations procedures. (paragraph E8.2)

A Violation (50-302/96-09-06) was identified for three examples of design control errors. The errors included incorrect design inputs for the battery charger and transformer modifications, and failure to update a drawing and the ISI program following a modification 12 years ago. (paragraph E8.3)

A Violation (50-302/96-09-07) was identified for failing to take timely corrective action to modify the Emergency Feedwater Initiation and Control system. (paragraph E8.4)

Plant Support

A Violation (50-302/96-09-02) was identified for failure to follow security procedures, resulting in unescorted visitor personnel within the protected area. (paragraph S1.1)

A Violation (50-302/96-09-03) was identified for failure to perform a 10 CFR 50.59 safety evaluation for changes to operating limits described in the Final Safety Analysis Report for controlling dissolved hydrogen concentration. (paragraph R8.1)

Report Details

Summary of Plant Status

The unit began the inspection period with the output breakers closed and the unit at 100 % power. The following evolutions occurred this inspection period:

- On August 14, 1996 at 7:28 p.m., reactor power was reduced to 94 % due to flashing occurring in the hotwell following the closing of HDV-61. HDV-61 is the drain valve from FWHE-3A to FWHE-2A.

- On August 17, 1996 at 7:37 a.m., reactor power increase commenced following the repair of HDV-61. Reactor power was returned to 100 % at 7:00 p.m.

- On August 20, 1996 at 10:00 p.m., reactor power was reduced to approximately 60 % due to the loss of the B CDP. See paragraph 02.1 for more details.

- On August 22, 1996 at 1:18 a.m., a reactor power increase was initiated after repairs to the B CDP. Reactor power reached 100 % at 11:00 a.m. on August 22, 1996.

- On August 26, 1996 at 1:11 a.m. while at 100 %, a power reduction was commenced to remove CWP-1A from service to support scheduled maintenance. Reactor power of 85 % was reached at 3:35 a.m.

- On August 30, 1996 at 9:36 a.m. while at 85 % reactor power, a power reduction was initiated due to fan belt breakage on the generator bus duct cooling fan. Reactor power was stabilized at 40 % at 2:04 p.m.

- Following repairs to both CWP-1A and the generator bus duct cooling fan, reactor power was returned to 100 % at 9:55 a.m. on September 1, 1996.

- At 1:40 p.m. on September 2, 1996, a power reduction from 100 % power was initiated due to low turbine lube oil pressure. The main generator output breakers were opened at 9:00 p.m. on September 2, 1996, with reactor power maintained at approximately 8 % of rated power.

- At 5:00 p.m. on September 3, 1996 the decision was made to place the plant in Mode 3. At 6:00 p.m. the plant entered Mode 2 (less than or equal to 5 % reactor power). At 6:20 p.m. the plant entered Mode 3 (shutdown with reactor coolant system greater than or equal to 280 degrees F).

- Due to a problem identified with the turbine lube oil piping, the decision was made to continue cooldown of the plant. The plant entered Mode 4 (280 degrees F > Tavg > 200 degrees F) at 9:05 p.m. on September 4, 1996 and established Decay Heat Operation at 4:30 a.m. on September 5, 1996. Mode 5 (Tavg less than or equal to 200 degrees F) was entered at 11:38 p.m. on September 5, 1996.

I. Operations

O1 Conduct of Operations

O1.1 General Comments (71707)

O1.2 Plant Shutdown

During the plant shutdown on September 2, 1996, at 10:00 p.m., while at a reactor power of approximately 22%, secondary cycle sampling pump SSP-4D tripped, allowing back flow from the sample valve to the condenser. This resulted in substantial air leakage into the condenser and an increase in hotwell oxygen. Chemistry personnel became aware that air was being drawn into the condenser through the sample valve and closed SSV-25. PR 96-351 was written to document this problem and recommended an evaluation be performed to add an in-line check valve that would prevent similar events.

During the loss of vacuum in the condenser as noted above, operators manually started a second vacuum pump, started a second gland water pump, and increased the rate of power decrease. This rapid power reduction resulted in a pressurizer out surge and RCS pressure reduction to approximately 2048 psig.

TS 3.4.1, RCS Pressure, Temperature, and Flow Departure From Nucleate Boiling (DNB) Limits, Condition A, requires with one or more RCS DNB parameters not within limits, restore the parameters to within limit within two hours. SR 3.4.1.1 requires loop pressure be equal to or greater than 2061.6 psig with four RCPs operating. During the evolution noted above, the RCS pressure was below 2061.6 psig for approximately two minutes, resulting in no violation of TS.

The licensee issued PR 96-354, RCS Pressure Less Than DNB Limit, to address this issue on September 3, 1996. The root cause analysis determined one of the primary causes was that management expectations concerning maintenance of primary plant parameters during events such as this, were not clearly understood.

The licensee has developed a corrective action plan to address this cause. Interpretations of TS requirements during plant transients are being developed. An OSB entry is being developed detailing the results of the event investigation and management expectations concerning maintenance of primary parameters during plant transients. The licensee is revising the licensed operator training to address these management expectations. The developed corrective actions for this event are being tracked by the licensee and no further actions by the NRC are required.

02 Operational Status of Facilities a' quipment

02.1 Loss of the B Condensate Pump (717

On August 20, 1996 at 10:00 p.m. with the plant at 100 % rated power, the control room received a Condensate Pump B Uncoupled alarm followed by a B Hotwell Level High annunciator alarm. Operators verified the B CDP was uncoupled and entered AP-510, Rapid Power Reduction, and reduced reactor power to approximately 60 %. During the power reduction, the B CDP was placed on the spare controller and demand was increased with no response. Investigation showed that the control cabinet for the B CDP had no power and therefore the electromagnetic coupling was not functioning. The condensate pumps are located on the 95 foot elevation of the Turbine Building on the northeast and northwest corners of the main condenser. Each pump assembly is set into a deep pit enclosure located below the 95' elevation.

The pump and motor shafts are not mechanically connected. They are coupled via an electromagnetic coupling device, which allows the speed of the pump to be varied while the motor turns at a constant speed of 1150 RPM. As the output of the pump controller is increased, an increasing voltage is applied to the electromagnetic coils. This causes an increase in the magnetic field strength between the motor and pump shaft, causing the pump shaft to begin to follow the motor rotation.

There are three condensate pump coupling control cabinets located on the 95 foot elevation of the Turbine Building on the north end of the condensers. The two outside cabinets are designated as the normal controls for its respective condensate pump. The center cabinet is a spare coupling controller and may be selected for use on either condensate pump. A select switch, mounted on the spare controller cabinet, is used to select A or B condensate pump to the spare controller.

Technicians replaced blown fuses in the B pump and spare control cabinets. The available evidence for the blown fuses was inconclusive, with the most probable cause being a ground on the brushes or slip rings caused by build up of carbon dust from the brushes. The pump was tagged out, the brushes replaced and the slip ring area cleaned. The B CDP was run with no load and the pump was swapped to the spare controller and back to normal to verify that both controllers were functional. PR 96-327, Loss of CDP-1B coupling causes power reduction from 100 % to 62 %, was written to document this problem.

A reactor power increase commenced at 1:18 a.m. on August 22, 1996.

02.2 Circulating Water Pump 1A Repairs (71707)

On August 26, 1996 at 1:11 a.m. while at 100 % reactor power, a power reduction was initiated to remove CWP-1A from service for scheduled maintenance. Reactor power was stabilized at 85 % at 3:35 a.m.

Following completion of the 10 R refueling outage, the licensee observed degradation in the discharge piping of the circulating water pumps. An interim maintenance plan has been implemented to periodically remove one of the CWPs from service and provide a temporary repair utilizing Belzona.

02.3 Generator Bus Duct Cooling Fan (71707)

A drive belt on generator bus duct cooling fan TBF-1 was evaluated and found to need replacement. If the generator bus duct cooler is lost, power must be reduced so that the generator current is below 10,000 amps. A power reduction was initiated at 9:36 a.m. on August 30, 1996, and reactor power was stabilized at 40 % (313 MWe), with generator current at 8,770 amps at 2:04 p.m. on August 30, 1996.

After replacement of the belts, the generator bus duct cooler fan was placed back in service at 8:00 a.m. on August 31, 1996. After a run-in period and tension test for the new belts, a power increase was initiated at 3:00 p.m. on August 31, 1996. Since CWP-1A had been returned to service also (see paragraph 02.2), reactor power was returned to 100 % at 9:55 a.m. on September 1, 1996.

02.4 Decreased Turbine Lube Oil Pressure (71707)

At 4:00 p.m. on August 30, 1996, Crystal River 3 received an auto-start of the main turbine ac powered back-up bearing oil pump (TBP-2) and the high pressure seal oil back-up pump (TBP-8) on low lube oil pressure. This auto-start of the ac powered back-up oil pump occurs at 10-12 psig. At the time, the unit was at approximately 40% power, in the process of reducing power to replace one failed and one degraded fan belt on the main generator bus duct cooling fan (see paragraph 02.3). TBP-8 was returned to standby, but TBP-2 restarted when a shutdown was attempted. Main lube oil pressure remained at approximately 18 psig with TBP-2 operating. This is the normal operating lube oil pressure.

The main turbine lube oil system consists of the main oil pump (TBP-1), the AC turbine bearing oil pump (TBP-2), the DC turbine bearing oil pump (TBP-3), the high pressure seal oil backup pump (TBP-8), the bearing lift oil pump (TBP-6), the lube oil ejector and the main turbine lube oil reservoir (LOT-2), with its associated heaters, coolers, and vapor extractor. Under normal full power operating conditions oil from the main turbine lube oil reservoir is routed to the individual bearings on the main turbine by the lube oil injector. The main oil pump, which is attached to the shaft of the main turbine, provides a high pressure supply of oil that is used to operate the thrust bearing trip device and serves as a backup source of oil to the seal oil system. The main oil pump and lube oil ejector are dependent on each other. The main oil pump depends on the lube oil ejector for its suction supply and the ejector uses the discharge of the main oil pump as its motive force.

The ac powered turbine bearing oil pump (TBP-2) is located on and takes suction from the main turbine lube oil reservoir. TBP-2 is interlocked

to auto start any time bearing lube oil pressure drops to below 10-12 psig. TBP-3 is interlocked to autostart any time bearing lube oil pressure drops to below 8-10 psig as sensed by TB-253-PS.

After discussions with Westinghouse, the licensee issued STI 96-029 with guidance for operations. This guidance included the following:

- Maintain lube oil temperatures as low in the normal band as possible. To facilitate this, both SCPs were placed in service.

- If turbine lube oil pressure degrades below 14 psig while TBP-2 is in operation, the turbine should be removed from service via a controlled shutdown.

- Increase the frequency of monitoring lube oil pressure.

After a review of the data, engineering recommended that the plant continue to run TBP-2 continuously and return the plant to full power following repair of the bus duct cooling fan. The plans were to schedule an outage to repair the low lube oil pressure problem. At 9:55 a.m., on September 1, 1996, the plant was returned to full power operation.

At 6:30 p.m., it was noted that turbine lube oil pressure had continued to degrade, at a rate of 0.8 psi/day. At 9:00 a.m. on September 2, 1996, a meeting was held to discuss the troubleshooting plan for the low lube oil pressure concerns. At 1:40 p.m. on September 2, 1996, the decision was made to decrease power and place the turbine on turning gear, in order to troubleshoot and make repairs. The main generator output breakers were opened at 9:00 p.m. on September 2, 1996 and reactor power was maintained at approximately 8% of rated power.

At 4:55 a.m. on September 3, 1996, when the maintenance technicians began removing the hand hole cover over LOV-471, oil came out. The licensee removed the adjacent manway cover and saw oil spraying inside the tank from the area of check valve LOV-471. Upon further investigation, it appears that the line downstream of LOV-471 has a long longitudinal split. The licensee proceeded to go on decay heat and stayed in Mode 5. At the end of this inspection period, the lube oil tank was drained in order to make repairs.

08 Miscellaneous Operations Issues

08.1 Employee Concerns Program

a. Inspection Scope (40001, 40500)

An inspection was conducted to evaluate the effectiveness of the licensee's Employee Concerns Program. The inspection included a program review, employee interviews, and documentation reviews.

The inspectors reviewed the licensee's program as outlined in Nuclear Operations Department procedure NOD-36, Employee Concerns Program, Revision 6, and interviewed the Employee Concerns Representative who administers the program. The interview with the Employee Concerns Representative focused on his qualifications for the position, as well as a review of the program and data related to the concern receipt/closure rate, number and age of open concerns, and outage time frames.

The inspectors interviewed 28 employees from various levels (i.e. managers and technicians) and disciplines, including: engineering, operations, maintenance, chemistry, health physics, security and training personnel. The selection was random, except the selection was made by departments in order to obtain a representative sample from the various work disciplines. This interview sample size was consistent with other inspections of this nature. Personnel interviewed were asked if they would report safety concerns to their supervisor or management, whether they were knowledgeable of the licensee's concerns program and how to use the program, whether the licensee's facilities were adequately accessible, and whether they felt uncomfortable or knew someone that had been badgered for reporting safety concerns. Personnel who stated they had used or had knowledge of someone who had used the concern program were asked about timeliness and adequacy of concern resolution.

Eleven closed employee concern files from the 1995/1996 time frame were reviewed to determine the adequacy of the licensee's investigation and corrective actions. Files selected included both substantiated and unsubstantiated concerns. Specifically the inspectors reviewed the files to determine if overviews and summaries of activities related to the concerns (i.e., priority, investigations, and communications) were adequate to address the employees' safety concerns. Additionally the inspectors evaluated each file to determine if concerns were clearly identified, and if closeout letters to the concerned employee adequately described the concern, the extent of the licensee's review, whether the employee's concern was substantiated or not substantiated, and any planned corrective actions.

The inspectors also conducted a review of the anonymous precursor cards (e.g. low level corrective action documents written by persons unknown) which had been written in the last six months at the site. A listing of these cards, which included a description of the problem and the corrective action taken, was provided by the licensee and reviewed by the inspectors. In addition, data concerning the number of anonymous precursor cards written versus the total number of precursor cards written during 1994 through August of 1996 was provided and reviewed.

b. Observations and Findings

The Employee Concerns Program is small and relatively informal, staffed with only one individual. The number of concerns received in the program is also small, and the safety significance of those concerns is

limited. The number of concerns received was as follows: 1993 - 8 concerns from exit interviews and 34 from working employees (42 total); 1994 - 74 concerns from exit interviews and 35 from working employees (109 total); 1995 - 8 concerns from exit interviews and 6 from working employees (14 total); 1996 - 40 concerns from exit interviews and 10 from working employees (50 total). The high number of concerns in 1994 was attributed to some company downsizing and a refueling outage. The low number of concerns in 1995 was attributed to management development and support of the Precursor Card Program. The high number of concerns in 1996 was attributed to a refueling outage. Also, timeliness of concern resolution was adequate, with only 1 concern open from 1994 and 12 open from 1996.

During the inspection, the number of anonymous precursor cards raised some concern on the part of the inspectors. Further investigation of this area resulted in resolution of this concern as follows: Review of the anonymous precursor cards written in the last six months determined that there were a total of 110 written. Review of a listing of these cards, however, revealed that only five of these cards had any safety significance, and the NRC had already investigated the problems identified on two of those five cards. Additionally, further comparison of the number of anonymous cards to the total number of cards written determined that the percentage of anonymous cards was very small, averaging less than four percent (1994 - 45 of 719, 1995 - 83 of 2886, and 1996 - 117 of 3959).

Program Strengths:

All employees interviewed stated they had confidence in the ability of their management to safely operate the plant.

Essentially all personnel interviewed expressed confidence in management and a receptiveness on the part of management regarding identification of safety concerns.

All personnel interviewed stated that they would raise safety issues through their management, the corrective action program, the Employee Concerns Program or the NRC.

All personnel interviewed stated that they would resolve safety issues through their line management and the licensee's corrective action program prior to involving the Employee Concerns Program or the NRC.

Most personnel were familiar with the existence of the licensee's concerns program and felt that accessibility to the program was acceptable. Only a small percentage of the people interviewed had used the program.

The site employee concern representative provided adequate physical protection of the files, and all records related to investigations were kept in locked storage with restricted access to protect the individuals' identities.

In most cases reviewed, the closeout letter to the concerned employee was completed within four months from receipt of the concern. The inspectors' review of the files indicated that the quality and timeliness of the licensee's reviews of concerns, investigations, and followup with concerned employees was adequate.

Program Weaknesses:

The percentage of concerns in the security area was unusually high. The licensee provided information which indicated recognition of this problem, including a self assessment of the security area. Resolution of many of the issues identified in the assessment was not completed, however, and continued management attention to this area is warranted.

The inspectors were informed that SBI Security has a separate concerns program, which is managed from SBI's corporate office. SBI is the only contractor which has a significant number of personnel on site. Although SBI personnel frequently use the licensee's program, SBI's corporate program is available for use by SBI personnel working at Crystal River and is not audited by the licensee. When requested by the inspectors, the licensee stated that they were not knowledgeable of the extent of use, if any, of the SBI corporate program by site SBI personnel.

Concerns are closed out based on actions which will be taken in the future to resolve a concern without any followup to verify completion of those corrective actions (i.e., corrective action recommendations are not tracked through implementation).

The Employee Concerns Program relies on the corrective action program for resolution of some concerns, and yet the Employee Concerns Program and the corrective action program are not tied together. Although technical reviews of the concerns were effectively performed such that concerns were fully investigated, closure packages did not always include documentation to demonstrate that the employee's concern had been adequately addressed. However, when requested by the inspectors the Employee Concerns Representative was able to produce documentation such as precursor cards to show that selected deficiencies had been documented.

Some of the individuals who had used the Employee Concerns Program were not satisfied with the results. Some of this can be attributed to a lack of followup with the concerned individual to assure they fully understood all corrective actions taken. Others were not satisfied with the timeliness of concern resolution. This perception, whether factual or not, has a tendency to suppress the effectiveness of an employee concerns program and should be addressed by the licensee.

Although letters to concerned individuals do address whether or not any corrective actions will be taken, the employee concerns packages and letters to the individuals do not reflect whether or not the concern is substantiated or not substantiated.

Nuclear Operations Department procedure NOD-36 requires the concerned individual be notified if a concern resolution will take longer than 30 days. There is no documentation included in the concern packages which reflects this action.

The letter to the concerned individual in one file did not accurately reflect the actual corrective action, which had resulted from the licensee's review of the concern. Corrective actions described in the letter would not have been adequate to fully resolve the concern. However, the inspectors noted that actual corrective actions completed by the licensee were adequate. The inspectors were informed that the concerned individual would be notified that additional corrective actions had occurred.

c. Conclusions

The inspectors concluded that the licensee's program was effective in handling and resolving employee safety concerns. Employees who were interviewed knew about the licensee's concerns program and would use it if they needed to, but most were generally satisfied with their supervisors' receptiveness to resolving safety concerns without the intervention of the concerns program. Accessibility to the program was thought to be acceptable to the people interviewed. The inspection determined that the technical issues in the program were being adequately resolved. The inspectors noted the willingness of licensee employees and management to identify and resolve safety issues through the normal chain of command and site corrective action programs. The inspectors concluded that, even though the Employee Concerns Program is a small and informal program, it is adequate.

II. Maintenance

M1 Conduct of Maintenance

M1.1 Inadvertent Actuation of Control Room Ventilation in the Recirculation Mode (62707)

On August 13, 1996, during performance of PT-366, Toxic Gas Detection System Calibration, an inadvertent actuation of the toxic gas system occurred. While performing step 4.7.1, the contract technician was instructed to place the SAMPLE/ZERO switch to the ZERO position. By error, the technician placed the main power switch to the OFF position. This caused the monitor to deenergize and tripped the control complex ventilation system to the emergency mode. The technician, realizing that something was wrong, placed the power switch back to the ON position.

In response, the operations SSOD had the technicians stop the SP, and required the I&C supervisor to directly supervise restoration of the system to its normal alignment. A precursor card was initiated and plant management was notified. The licensee initiated a HPES evaluation to determine probable root causes. On August 15, 1996 a MRP meeting was

held to discuss the issue, determine adequacy of the evaluation, and begin the development of a corrective action plan.

The HPES evaluation identified several causes for the inappropriate actions, including: (1) not having the supplied procedure in hand while performing the actions, (2) not using STAR, (3) having a non TPM qualified technician independently performing procedure steps, and (4) failure to maintain constant communications while performing the task. A number of contributing factors were also discussed, including: (1) management did not provide adequate training to temporary personnel on the use of procedures, (2) management has not constantly reenforced the Event-Free operations program to plant personnel, (3) effective monitoring of the use of procedures is inadequate, (4) management has not provided adequate training on STAR to temporary personnel , (5) management has not conveyed adequately to all maintenance personnel the need to eliminate all inadvertent actuations of equipment in the plant, and (6) job assignment did not take into account the need for two TPM qualified technicians to perform the independent tasks of PT-366.

The inspectors attended the MRP meeting where the results of the HPES were discussed. The DNPO constantly challenged the assessors to defend their conclusions and to provide him with corrective actions that would address the contributing factors, as well as the identified primary causes. One comment made by the HPES evaluator was that there is evidence of a perception at CR3 that adherence to procedures and STAR is proportional to the consequences of not using them. The DNPO agreed with the statement, and directed the responsible personnel to determine the root cause of this perception and develop corrective actions to address it. The MRP conducted for this event was very detailed and stressed identifying all of the contributors to this problem.

Technical Specifications (TS) 5.6.1.1 requires written procedures be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. RG 1.33, Appendix A requires administrative procedures regarding procedure adherence. AI-400E, Performance and Transmittal of Procedures, paragraph 1.1, Policy, states that verbatim compliance of procedures is required, but procedures must not be blindly followed. The technician's failure to follow the requirements of PT-366 is a violation, VIO 50-302/96-09-01, Failure to follow a procedure resulting in the inadvertent initiation of the control room emergency ventilation system.

M3 Maintenance Procedures and Documentation

M3.1 Surveillance Observations (61726)

The inspectors witnessed portions of the performance of PT-325, Turbine Generator Checks. During the surveillance, the C MSR combined intercept/stop valve failed to stroke. Following maintenance troubleshooting of the controller, the valve was stroked successfully. The cause of the valve failing to stroke was not determined. The

following day, while performing the procedure for the remaining MSRs, the A valve stroked, as required, but the B and D valves failed to stroke. The licensee again performed troubleshooting, but no discernible problems were identified.

After reviewing industry experience and discussing the situation with the turbine vendor, the licensee determined that the most probable cause of the problem was excessive moisture in the EHC fluid. The moisture would interfere with the operation of the control solenoid. As interim corrective actions, the licensee replaced the Fuller earth filters on the oil and filled the EHC oil tank, to decrease available volume for moisture containing air to occupy. The inspectors verified that the interim corrective actions had been completed. The licensee is continuing to work on a permanent solution to address this concern.

M8 Miscellaneous Maintenance Issues

M8.1 Emergency Feedwater Piping (92902)

LER 50-302/95-027-00, Leak in underground emergency feedwater piping suspected to be caused by nearby evacuation using power tools, was submitted as a voluntary LER on January 5, 1996. During the last refuel outage (10R) the licensee excavated the EFW piping and corrected the problem. As documented in IR 50-302/96-03, paragraph M1.1, the NRC reviewed the licensee's actions and concluded that the licensee's actions were appropriate. This LER is closed.

III. Engineering

E8 Miscellaneous Engineering Issues

E8.1 (Closed) URI 50-302/96-03-09, Operating Curves Not Promptly Updated to Reflect 1981 Power Uprate

a. Inspection Scope (92903)

This issue was described in paragraph E8.1 of NRC Inspection Report 50-302/96-03, and was left unresolved pending NRC review to determine if it was an additional example of an apparent violation of 10 CFR 50, Appendix B, Criterion III, discussed at a predecisional enforcement conference on March 27, 1996. The issue involved failure to update, until July of 1995, Operating Procedure OP-103A, Startup Curves, to reflect the 1981 power uprate.

b. Observations and Findings

Upon further review, the NRC determined this issue is substantially different and not an additional example of the apparent violation.

c. Conclusions

This issue is identified as VIO 50-302/96-09-04, Failure to Update Operating Curves to Reflect 1981 Power Uprate. URI 50-302/96-03-09 is closed.

E8.2 (Closed) URI 50-302/96-04-09, Failure to Incorporate Design Information Into Operations Procedures

a. Inspection Scope (92903)

This issue was described in paragraph E2.3 of NRC Inspection Report 50-302/96-04, and was left unresolved pending NRC review to determine if it was an additional example of an apparent violation of 10 CFR 50, Appendix B, Criterion III, discussed at a predecisional enforcement conference on March 27, 1996. This issue involved failure to revise Operations Procedures, or to provide training to operators, after modifying Valve MUV-64 to change the Valve Operator from a disabled air operated valve (locked in the open position) to manual operation with a handwheel, in accordance with MAR 95-01-07-01.

The MAR was implemented to address, in part, the concerns of operations personnel regarding the loss of level indication in the Makeup Tank (MUT) during Loss of Coolant Accident (LOCA) conditions, and the potential for hydrogen gas being entrained in the suction to the Makeup Pumps (MUPs). The design input record of the MAR package discussed adding the manual gear driven chain operator for better access in the manual mode, since it might be necessary to quickly stroke the valve closed in certain accident scenarios with the new higher MUT hydrogen gas pressures (e.g., certain Appendix R fires, keeping the MUT level indication on scale post LOCA, rapid boration requirements, etc.). The valve was identified in the valve lineup section of operating procedure OP-402, Makeup and Purification System, Revision 84. The procedure only showed the valve position as being sealed open, and there was no discussion on operation of the valve during potential accident conditions.

b. Observations and Findings

Upon further review, the NRC determined this issue is substantially different and not an additional example of the apparent violation.

c. Conclusions

This issue is identified as VIO 50-302/96-09-05, Failure to Incorporate Design Information Into Operations Procedures. URI 50-302/96-04-09 is closed.

As noted in NRC Inspection Report 50-302/96-04, licensee management stated that they did not agree with the NRC position on this issue because they had reviewed operations and other plant department procedures (in accordance with their design control process) and

determined that no procedures needed to be revised. During the current inspection, the licensee continued to disagree with the NRC position since, based on calculations in process in parallel with implementation of the MAR, they did not plan to operate valve MUV-64 during accident conditions. After further discussion, in order to add conservatism during accident conditions, the licensee decided to revise Emergency Operating Procedures (EOPs) 7 and 8 to: (1) reverse the High Pressure Injection (HPI) "piggyback" transfer prior to swapping the Building Spray and Decay Heat pumps to the Reactor Building (RB) sump, resulting in isolation of the MUP from the MUT earlier in the transfer sequence, and increasing the available NPSH for the HPI pumps, and (2) closing MUV-64 if accessible. In addition, a revision to the OPS Study Book Entry would be made to describe the EOP changes. The EOP changes and the OPS Study Book Entry change were completed before close of the inspection.

E8.3 (Closed) URI 50-302/96-03-07, Three Examples of Design Control Errors

a. Inspection Scope (92903, 37551)

This item was described in paragraph E1.1 of NRC Inspection Report 50-302/96-03. It involved two examples of calculation errors and an example of an erroneously located inservice inspection boundary. The item was considered unresolved pending an NRC review to determine if it should be considered an additional example of an apparent violation discussed at the predecisional enforcement conference on March 27, 1996.

b. Observations and Findings

On further review, the NRC determined that this item was substantially different than the example referred to in the apparent violation.

c. Conclusions

This item will be cited separately and will be identified as VIO 50-302/96-09-06, Erroneous calculation inputs and inservice inspection boundary. URI 50-302/96-03-07 is closed.

E8.4 (Closed) URI 50-302/96-04-06, Untimely Corrective Actions for the EFIC System Concerns and Problems

a. Inspection Scope (92903)

This item was described in paragraph E2.4 of NRC Inspection Report 50-302/96-04. It involved untimely corrective actions to address Emergency Feedwater Initiation and Control (EFIC) system concerns and problems. The item was considered unresolved, pending an NRC review to determine if it should be considered an additional example of an apparent violation discussed at the predecisional enforcement conference on March 27, 1996.

b. Observations and Findings

On further review, the NRC determined that this item was substantially different and from the example cited in the apparent violation.

c. Conclusions

This item will be cited separately and will be identified as VIO 50-302/96-09-07, Untimely Corrective Actions for the EFIC System Concerns and Problems. URI 50-302/96-04-06 is closed.

IV. Plant Support

R8 Miscellaneous RP&C Issues

R8.1 (Closed) URI 50-302/96-04-07, Failure to Perform 10 CFR 50.59 Safety Evaluation for Procedures Involving Dissolved Hydrogen Concentration Changes as Described in the FSAR

a. Inspection Scope (92904)

This issue was described in paragraph R1.1 of NRC Inspection Report 50-302/96-04 and was left unresolved, pending NRC review to determine if it was an additional example of an apparent violation of 10 CFR 50.59 discussed at a predecisional enforcement conference on March 27, 1996. The issue involved failure to perform a 10 CFR 50.59 Safety Evaluation when the Reactor Coolant System dissolved hydrogen concentration was changed from 15-40 cc/kg to 25-50 cc/kg.

b. Observations and Findings

Upon further review, the NRC determined this issue is substantially different and not an additional example of the apparent violation. Therefore, this issue is identified as VIO 50-302/96-09-03, Failure to Perform 10 CFR 50.59 Safety Evaluation for Changes to Procedures Described in the FSAR for Controlling Dissolved Hydrogen Concentration.

Paragraph R1.1 of NRC Inspection Report 50-302/96-04 noted that the licensee has identified other examples where implementing procedures do not agree with the FSAR. These examples were identified as part of the licensee's ongoing FSAR Operational Review Project, which is a detailed review comparing the FSAR with the Design Basis Documents and other plant documents to ensure consistency and compliance with the FSAR. Although a significant number of discrepancies have been identified, none have been determined to represent loss of safety function or to be outside the design basis of the plant. As additional discrepancies are identified that need further evaluation, they are being added to Problem Report (PR) 96-119 for resolution. The review is scheduled to be completed in February of 1997. The resolution of these FSAR discrepancies will be reviewed during future inspections of the results of the FSAR Operational Review.

c. Conclusions

A violation has been identified as VIO 50-302/96-09-03, Failure to Perform 10 CFR 50.59 Safety Evaluation for Changes to Procedures Described in the FSAR for Controlling Dissolved Hydrogen Concentration. URI 50-302/96-04-07 is closed.

P8 Miscellaneous EP Issues

P8.1 TSC Emergency Ventilation System (92904)

LER 50-302/95-14-01, Technical support center air flow deviates from acceptable flow resulting in operation outside the design basis, was issued on December 1, 1995. The NRC issued Deviation 50-302/96-15-05, Deviation from the design commitment for the Technical Support Center emergency ventilation system. By letters dated November 9, 1995, February 7, 1996, March 29, 1996, and April 30, 1996, the licensee provided details of the TSC ventilation system modifications to make the system function, and to maintain the TSC habitable for postulated radiological emergencies. The licensee's corrective actions were reviewed and found acceptable as documented in IR 50-302/96-03, paragraph P2 and IR 50-302/96-04, paragraph P8.1. The Deviation, 50-302/96-15-05, was closed in IR 50-302/96-04. This LER is closed.

S1 Conduct of Security and Safeguards Activities

S1.1 Escort Duties (71750)

At approximately 11:45 a.m. on August 14, 1996, while exiting the TSC, the inspector observed two vendor personnel, one visitor and one escort, with a vending machine, waiting to exit in the hallway between the TSC and the TSC diesel generator room. All of the doors from the TSC into the hallway were closed, and a security guard was unlocking the emergency doors to the outside to allow the machine to be removed. Approximately thirty seconds after the inspector entered the hallway, a third vendor entered the hallway, unescorted, from the TSC. This vendor was also wearing a visitor's badge. There was no separate escort for this visitor.

The inspector notified the security guard of the occurrence and discussed the event with the security shift supervisor. The supervisor immediately initiated an investigation into the causes of the event.

The CR3 Physical Security Plan, paragraph 5.5.1, requires that all personnel not issued a yellow or green identification badge be handled as visitors and be escorted at all times while within the protected or vital areas. The failure of the escort personnel to maintain visitor personnel under surveillance at all times is a violation of the Physical Security Plan and will be identified as VIO 50-302/96-09-02, Unescorted visitor personnel within the protected area.

V. Management Meetings

X1 Exit Meeting Summary

X1.1 During an interim exit meeting on August 30, 1996, the Director, Nuclear Plant Operations questioned Violation 50-302/96-09-05 (relative to the failure to change procedures after the modification of valve MUV-64) since the valve lineup procedure was changed to show valve MUV-64 sealed open. The question was whether a violation existed if this procedure change was made prior to identification of this problem by the NRC. The inspectors noted that change to the valve lineup procedure, without additional instructions on when and under what plant conditions to operate the valve does not satisfy the need for additional instructions for the operators.

X1.2 The inspection scope and findings were summarized on September 9, 1996. The inspectors described the areas inspected and discussed in detail the inspection results listed below. Proprietary information is not contained in this report. Except as noted in paragraph X1.1, dissenting comments were not received from the licensee.

X3 Management Meeting Summary

X3.1 On August 28, 1996 a management meeting was held on site at FPC to review the licensee's CAP (Corrective Action Plan) to improve performance. A meeting summary was issued on September 10, 1996.

X3.2 On August 13, 1996, the inspectors attended an exit meeting between licensee personnel and representatives of the U.S. Department of Labor, Occupational Safety and Health Administration. Discussions were held on the areas of hearing protection programs and personnel protection from rotating assemblies on various pumps. Final results will be presented in the forthcoming report by OSHA. No follow-up is planned by the NRC.

X4 Management Changes

X4.1 Personnel Changes

Mr. R. Enfinger was replaced by Mr. D. Wilder as Manager, Safety Assessment Team. Mr. R. Enfinger has left FPC. Mr. D. Wilder's former position as Manager, Radiation Protection has not been filled at this time.

The positions of Manager, Nuclear Production and Manager, Nuclear Outage have been combined and will be headed up by Mr. H. Koon.

Mr. B. Moore, former Manager, Nuclear Production will assume a position as Nuclear Shift Manager.

Mr. G. Wilson formerly one of six Nuclear Shift Managers, will become a member of the Safety Assessment Team.

Mr. J. Baumstark, formerly Assistant to Sr. Vice President, Nuclear Operations, will assume the position of Director of Quality Programs, effective October 1, 1996.

PARTIAL LIST OF PERSONS CONTACTED

Licensees

K. Baker, Manager, Nuclear Configuration Management
P. Beard, Senior Vice President Nuclear Operations
G. Boldt, Vice President Nuclear Production
J. Campbell, Manager, Nuclear Security
J. Campbell, Assistant Plant Director, Maintenance and Radiation Protection
W. Conklin, Jr., Director, Nuclear Operations Materials and Controls
R. Davis, Assistant Plant Director, Operations and Chemistry
D. DeMontfort, Manager, Nuclear Operations
M. Donovan, Supervisor, Rapid Engineering Response Team
R. Fuller, Manager, Nuclear Chemistry
B. Gutherman, Manager, Nuclear Licensing
G. Halnon, Assistant Director, Nuclear Operations Site Support
V. Hernandez, Employee Concerns Representative
B. Hickle, Director, Nuclear Plant Operations
L. Kelley, Director, Nuclear Operations Site Support
H. Koon, Manager, Nuclear Production
K. Lancaster, Manager, Nuclear Projects
J. Maseda, Manager, Engineering Programs
P. McKee, Director, Quality Programs
R. McLaughlin, Nuclear Regulatory Specialist
W. Rossfeld, Manager, Site Nuclear Services
J. Stephenson, Manager, Radiological Emergency Planning
F. Sullivan, Manager, Nuclear Engineering Design
J. Terry, Manager, Nuclear Plant Technical Support
R. Widell, Director, Nuclear Operations Training
D. Wilder, Manager, Safety Assessment Team
K. Wilson, Principal Engineer, Operations

NRC

W. Bearden, Reactor Inspector, Region II (August 19-23, 1996)
S. Cahill, Resident Inspector, Watts Barr (August 28-30, 1996)
K. Clark, Public Relations, Region II (August 28, 1996)
B. Crowley, Reactor Inspector, Region II (August 26-30, 1996)
S. Ebneter, Regional Administrator, Region II (August 28, 1996)
R. Gibbs, Reactor Inspector, Region II (August 19-23, 1996)
A. Gibson, Director, Div. of Reactor Safety, Region II (August 28, 1996)
E. Girard, Reactor Inspector, Region II (August 26-30, 1996)
F. Hebdon, Director, Directorate II-3, NRR (August 28, 1996)
J. Hufham, Incident Response Coordinator, Region II (August 22, 1996)
J. Jacobson, IPAP Team Leader, NRR (August 28, 1996)
J. Johnson, Acting Director, Div. of Reactor Projects, Region II (August 28, 1996)

K. Landis, Branch Chief, Region II (August 28, 1996)
L. Raghavan, Project Manager, NRR (August 28, 1996)
S. Varga, Director, Div. of Reactor Projects I/III, NRR (August 28, 1996)

INSPECTION PROCEDURES USED

IP 37551: Onsite Engineering
IP 40001: Resolution of Employee Concerns
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 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	50-302/96-09-01	Open	Failure to follow a procedure resulting in the inadvertent initiation of the control room emergency ventilation system. (paragraph M1.1)
VIO	50-302/96-09-02	Open	Unescorted visitor personnel within the protected area. (paragraph S1.1)
VIO	50-302/96-09-03	Open	Failure to perform 10 CFR 50.59 safety evaluation for changes to procedures described in the FSAR for controlling dissolved hydrogen concentration. (paragraph R8.1)
VIO	50-302/96-09-04	Open	Failure to update operating curves to reflect 1981 power uprate. (paragraph E8.1)
VIO	50-302/96-09-05	Open	Failure to incorporate design information into operations procedures. (paragraph E8.2)
VIO	50-302/96-09-06	Open	Erroneous calculation inputs and inservice inspection boundary. (paragraph E8.3)

VIO	50-302/96-09-07	Open	Untimely corrective actions for the EFIC system concerns and problems. (paragraph E8.4)

Closed

Type	Item Number	Status	Description and Reference
LER	50-302/95-014-01	Closed	Technical support center air flow deviates from acceptable flow resulting in operation outside the design basis. (paragraph P8.1)
LER	50-302/95-27-00	Closed	Leak in underground emergency feedwater piping suspected to be caused by nearby evacuation using power tools. (paragraph M8.1)
URI	50-302/96-03-09	Closed	Operating curves not promptly updated to reflect 1981 power uprate. (paragraph E8.1)
URI	50-302/96-04-09	Closed	Failure to incorporate design information into operations procedures. (paragraph E8.2)
URI	50-302/96-04-07	Closed	Failure to perform 10 CFR 50.59 safety evaluation for procedures involving dissolved hydrogen concentration changes as described in the FSAR. (paragraph R8.1)
URI	50-302/96-03-07	Closed	Three examples of design control errors. (paragraph E8.3)
URI	50-302/96-04-06	Closed	Untimely corrective actions for the EFIC System concerns and problems. (paragraph E8.4)

LIST OF ACRONYMS USED

ac - Alternating Current
ADI - Absolute Drift Indications
AHD - Air Handling Vent and Cooling Damper
AHV - Air Handling Vent and Cooling Valve
AI - Administrative Instruction
ALARA - As Low as Reasonably Achievable
ANSI - American National Standards Institute
ANSS - Assistant Nuclear Shift Supervisor
APC - Alternate Plugging Criteria
ASME - American Society of Mechanical Engineers
ASV - Auxiliary Steam Valve
B&PV - Boiler and Pressure Vessel

B&W - Babcock & Wilcox
BS - Building Spray
BSP - Building Spray Pump
BVT - Below Voltage Threshold
BWST - Borated Water Storage Tank
CAL - Confirmatory Action Letter
CAP - Corrective Action Plan
CCTV - Closed Circuit Television
CDP - Condensate Pump
CFR - Code of Federal Regulations
CFT - Core Flood Tank
CFV - Core Flood Valve
CP - Compliance Procedure
CREVS - Control Room Emergency Ventilation System
CR3 - Crystal River Unit 3
CST - Condensate Storage Tank
CWP - Circulating Water Pump
dc - Direct Current
DC - Decay Heat Closed Cycle Cooling
DCHE - DC Heat Exchanger
DEV - Deviation
DFP - Diesel Fuel Pump
DH - Decay Heat
DHHE - Decay Heat Heat Exchanger
DHP - Decay Heat Pump
DHR - Decay Heat Removal
DHV - Decay Heat Valve
DNB - Departure from Nucleate Boiling Limits
DNPO - Director, Nuclear Plant Operations
dp - Differential Pressure
EA - Enforcement Action
ECCS - Emergency Core Cooling System(s)
EDBD - Enhanced Design Basis Document
EEI - Escalation Enforcement Item
EFIC - Emergency Feedwater Initiation and Control
EFP - Emergency Feedwater Pump
EFT - Emergency Feedwater Tank
EFW - Emergency Feedwater
EFV - Emergency Feedwater Valve
EGDG - Emergency Diesel Generators
EHC - Electro-Hydraulic Control
EM - Emergency Plan Implementing Procedure
EOP - Emergency Operating Procedure
EP - Emergency Preparedness
ES - Engineered Safeguards
ESF - Engineered Safeguards Feature
ESAS - Engineered Safety Actuation System
ET - Eddy Current Test
EVS - Emergency Ventilation System
F - Fahrenheit
FPC - Florida Power Corporation
FSAR - Final Safety Analysis Report

FWHE - Feedwater Heat Exchanger
FWP - Feedwater Pump
FWV - Feedwater Valve
GL - Generic Letter
gpm - Gallons Per Minute
HDV - Heater Drain Valve
HELB - High Energy Line Break
HP - Health Physics
HPES - Human Performance Evaluation System
HPI - High Pressure Injection
HVAC - Heating, Ventilation and Air Conditioning
in. Hg - Inches of Mercury
I&C - Instrumentation and Control
ICC - Inadequate Core Cooling
ICS - Integrated Control System
IEEE - Institute of Electrical and Electronics Engineers
IFI - Inspection Followup Item
INPO - Institute of Nuclear Power Operations
IR - Inspection Report
ISA - Instrument Society of America
ISI - Inservice Inspection
ISO - Isometric Drawing
IST - Inservice Test
ITS - Improved Technical Specification
JCO - Justification for Continued Operation
JPM - Job Performance Measure
Kv - Kilovolt
Kw - Kilowatt
LCO - Limiting Condition for Operation
LER - Licensee Event Report
LOCA - Loss of Coolant Accident
LOOP - Loss of Offsite Power
LOV - Lube Oil Valve
LTE - Lower Tube End
LTS - Lower Tube Sheet
MAR - Modification Approval Record
MCB - Main Control Board
MCC - Motor Control Center
MFW - Main Feedwater
MOV - Motor Operated Valve
MOVATS - Motor Operated Valve Analysis and Test System
MP - Maintenance Procedure
MRP - Management Review Panel
MSV - Main Steam Valve
MT - Magnetic Particle Testing
MU - Make Up
MUP - Make-up Pump
MUT - Make-up Tank
MUV - Make-up Valve
MW - Megawatt
NCV - Non-cited Violation
NDE - Nondestructive Examination

NEP - Nuclear Engineering Procedure
NMI - Nuclear Monitoring Instrumentation
NOD - Nuclear Operations Department
NOV - Notice of Violation
NPSH - Net Positive Suction Head
NQI - Non-Quantifiable Indication
NRC - Nuclear Regulatory Commission
NRR - Office of Nuclear Reactor Regulation
NSM - Nuclear Shift Manager
NSSS - Nuclear Steam System Supplier
NUREG - NRC technical report designation
OCR - Operability Concerns Resolution
OP - Operating Procedure
OSB - Operations Study Book
OSHA - Occupational Safety and Health Administration
OTSG - Once Through Steam Generator
PM - Preventive Maintenance
PORV - Power Operated Relief Valve
ppb - Parts Per Billion
PR - Problem Report
PRC - Plant Review Committee
PSI - Preservice Inspection
psig - pounds per square inch gauge
PT - Liquid Penetrant
PTLR - Pressure and Temperature Limits Report
QC - Quality Control
QA - Quality Assurance
QAP - Quality Assurance Procedure
RB - Reactor Building
RC - Reactor Coolant
RCA - Radiation Control Area
RCP - Reactor Coolant Pump
RCPPM - Reactor Coolant Pump Power Monitor
RCS - Reactor Coolant System
REA - Request for Engineering Assistance
RFO - Refueling Outage
RG - Regulatory Guide
RO - Reactor Operator
RPC - Rotating Pancake Coil
RP&C - Radiological Protection and Chemistry
RPM - Revolutions Per Minute
RT - Radiographic Inspection
RW - Nuclear Services and Decay Heat Seawater
RWP - Nuclear Services and Decay Heat Seawater Pump
RWV - Nuclear Services and Decay Heat Seawater Valve
SALP - Systematic Assessment of Licensee Performance
SAT - Systems Approach to Training
SCP - Secondary Closed Cycle Cooling Pump
SDT - Station Drain Tank
SER - Safety Evaluation Report
SFPD - Safety Function Determination Program
SG - Steam Generator

SOER - Significant Operating Event Report
SP - Surveillance Procedure
SR - Surveillance Requirement
SSOD - Shift Supervisor on Duty
SSV - Secondary Cycle Sampling Valve
STAR - Stop, Think, Act, Review
STI - Short Term Instruction
SW - Nuclear Services Closed Cycle Cooling System
SWHE - SW Heat Exchanger
SWP - SW System Pump
SWV - SW System Valve
TBF - Turbine Generator Fan
T_c - Cold Leg Temperature
TI - Temporary Instruction
TMAR - Temporary Modification Approval Record
TMI - Three Mile Island
TPM - Task Performance Manual
TS - Technical Specification
TSC - Technical Support Center
TSCR - Technical Specification Change Request
TW - Through Wall
UAf - A measure of heat exchanger effectiveness
UHS - Ultimate Heat Sink
URI - Unresolved Item
USAS - United States of America Standards
UT - Ultrasonic Test
VIO - Violation
VOTES - Valve Operation Test and Evaluation System
Vpp - Volts point-to-point
WR - Work Request