UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

October 29, 1996

IA 96-068

Mr. Garrett P. Hebb
[HOME ADDRESS DELETED
UNDER 10 CFR 2.790]

SUBJECT: NRC INSPECTION REPORT NO. 50-302/96-04

Dear Mr. Hebb:

This letter refers to an inspection conducted on April 21 through May 18, 1996, at Florida Power Corporation's (FPC) Crystal River Nuclear Plant - Unit 3. During the inspection, the NRC examined the facts and circumstances surrounding your conduct of unauthorized tests while you were an NRC-licensed senior reactor operator (SRO). You were informed of our initial inspection findings and provided a copy of the applicable inspection report by letter dated August 19, 1996. You were also provided an opportunity to respond in writing to the apparent violation or request a predecisional enforcement conference to discuss the apparent violation, the root cause, and the corrective actions to preclude recurrence. By letter received on August 29, 1996, you declined a conference, and by letter dated September 20, 1996, you provided a written response to the apparent violation. We have reviewed the inspection results and the additional information you provided and have concluded that sufficient information is available to determine the appropriate enforcement action in this matter.

Based on the information developed during the inspection and the information that was provided in your written response, the NRC has determined that your actions involved violations of NRC requirements. Specifically, as described in detail in the subject inspection report, while you were an SRO you conducted four evolutions, not required by plant conditions for the purpose of gathering data, without written safety evaluations as required by 10 CFR 50.59. These unauthorized evolutions were: (1) tests conducted in the 1980s and 1990s which involved shutting off spent fuel pool cooling pumps to gauge heat-up rate; (2) a test conducted on June 20, 1994, which involved shutting off the reactor cavity cooling system supply pumps to gauge reactor cavity heat-up rate; (3) a test conducted on January 10, 1994, which involved shutting off reactor building penetration cooling fans to gauge heat-up rate; and (4) a test conducted in the early 1980s to assess instrument air system pressure decay by shutting off the compressors during plant operations. By your own admission several of these tests were conducted on multiple occasions during the 1980s and 1990s. You should note, however, that the fifth evolution addressed in your response regarding shutting off the circulating water box air removal vacuum pump to evaluate plant response was not determined to be a violation of 10 CFR 50.59.

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In your response, you stated that you believed, at the time, that conduct of such evolutions was within the authority of the Shift Supervisor as established by FPC standards. As described in our reports associated with the make-up tank and your unauthorized tests, NRC agrees that the operating environment created by Crystal River management permitted these violations to occur. However, performance of unauthorized evolutions on plant systems without the proper review process or approval is significant. As a member of management you were responsible to set the example for your peers and other shift operating crews as well as ensuring public health and safety through procedural and regulatory compliance. In this regard, you did not meet your responsibilities, and, in fact, your actions may have contributed to the overall operating environment which existed at Crystal River - Unit 3.

After considering the results of our inspection, your written response and the information obtained during FPC's and NRC's investigation of the make-up tank evolutions, we have concluded that formal enforcement action against you is not warranted. This decision is based, in part, on the specific circumstances of the unauthorized evolutions and their effect on plant safety, the length of time that has passed since some of the evolutions were performed, your candidness in identifying the evolutions that you performed, and the extent of FPC management's responsibility and culpability in this matter. As you are no doubt aware, on July 10, 1996, NRC issued a significant sanction against FPC which addressed the make-up tank unauthorized tests and the overall operating environment at Crystal River. Subsequently, by letter dated October 18, 1996, the NRC amended that enforcement action to include the four additional unauthorized tests described above. Copies of these enforcement actions are enclosed for your reference.

On June 4, 1996, your NRC license was terminated at the request of FPC. Should you apply for a license to operate a nuclear reactor in the future, the Commission may require, pursuant to 10 CFR 55.31(b), further information regarding your level of commitment to comply with NRC regulations and the conditions of your license in order to determine whether to grant or deny your application.

No reply to this letter is required. However, should you desire to provide a response, please submit it within 30 days of the date of this letter to me at the U. S. Nuclear Regulatory Commission, Region II, 101 Marietta St., N.W., Suite 2900, Atlanta, Georgia, 30323. In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, records or documents compiled for enforcement purposes are placed in the NRC Public Document Room (PDR). Therefore, a copy of this letter with your address removed, as well as any reply you choose to provide, will be placed in the PDR. A copy will also be provided to the Florida Power Corporation.

If you have any questions or comments, please contact me at (404) 331-5680.

Sincerely,

Albert F. Gibson, Director
Division of Reactor Safety

Docket No. 55-5417
License No. SOP-2646-7

Enclosures: 1. Letter to FPC dated July 10, 1996
2. Letter to FPC dated October 18, 1996

cc w/encls [WITH HOME ADDRESS DELETED]:
Florida Power Corporation
Crystal River Energy Complex
Mr. P. M. Beard, Jr. (SA2A)
Sr. VP, Nuclear Operations
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NRC Resident Inspector
U.S. Nuclear Regulatory Commission
6745 N. Tallahassee Road
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per B. Summers 10/25/96

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

JUL 10 1996

EA 95-126

Mr. P. M. Beard, Jr.
Senior Vice President, Nuclear
Operations (SA2A)
ATTN: Manager, Nuclear Licensing
Florida Power Corporation
Crystal River Energy Complex
15760 West Power Line Street
Crystal River, Florida 34428-6708

SUBJECT: NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTIES - $500,000
(NRC Inspection Report Nos. 50-302/95-13 and 50-302/95-22 and Investigation Report Nos. 2-94-036 and 2-94-036S)

Dear Mr. Beard:

This refers to investigations conducted by the Nuclear Regulatory Commission (NRC) Office of Investigations (OI) completed on May 24, 1995, and February 13, 1996; and NRC inspections conducted during the period September 5, 1994, through December 15, 1995, and documented in NRC Inspection Report Nos. 50-302/95-13 and 50-302/95-22. These inspection reports also summarize related findings discussed in NRC Inspection Report Nos. 50-302/94-22, 95-02, 95-07, 95-08 and 95-09. During these reviews, the NRC examined the facts and circumstances surrounding events involving control of the pressure and level for the reactor coolant system (RCS) make-up tank (MUT) between June 1994 and September 1994 and reviewed the adequacy of design control and corrective actions that affected operability of emergency core cooling system (ECCS) pumps. By letters dated July 7, 1995, and March 8, 1996, you were provided synopses of the OI investigation reports in this case and given an opportunity to attend a predecisional enforcement conference to discuss the apparent violations, their cause, and the corrective actions to preclude recurrence. A closed, transcribed conference was conducted on March 27, 1996, in the Region II office in Atlanta, Georgia. A summary of the conference was sent to you by letter dated April 2, 1996. Subsequently, on April 4, 1996, you submitted supplemental information to the NRC regarding information which was not available at the time of the conference.

Based on the information developed during the inspections and investigations as well as the information you provided during the conference and in your subsequent submittal, the NRC has determined that a number of significant violations of NRC requirements occurred. Enclosure 2 contains a Notice of Violation and Proposed Imposition of Civil Penalties (Notice) that describes the violations. The violations are discussed in more detail in Enclosure 1, and the circumstances surrounding them are described in detail in the subject inspection reports and investigation report synopses.

Enclosure 1

The violations in the Notice are grouped as follows:

Part I contains the violations for which civil penalties have been assessed. Item I.A involves numerous instances in which operating procedures were violated, demonstrating poor performance of the operations department in that operating limits associated with operating procedure OP-103B, Curve 8, were routinely exceeded. While there were numerous instances where operating procedures were violated, the Notice identifies examples in which operating limits were exceeded for more than 30 minutes with some as long as three hours.

Item I.B involves a violation in which a crew of licensed operators conducted unauthorized tests on two separate occasions in an effort to resolve safety concerns that had not promptly been addressed by the licensee.

Item I.C involves two separate violations involving the failure to promptly identify and correct conditions adverse to quality. First, the licensee failed to identify promptly that the operating curve questioned by licensed operators was, in fact, nonconservative and, second, the licensee's first three attempts at corrective action were inadequate.

Item I.D consists of two separate violations involving inadequate performance by engineering in design control. The first violation involves the issuance of an inaccurate, nonconservative, design basis curve to operators to be used as an operating curve. The second violation involves the use of an inaccurate, nonconservative setpoint for the swap over of the suction for emergency core cooling system pumps from the borated water storage tank to the reactor building sump.

Part II consists of additional violations that were not assessed a civil penalty: an additional Severity Level III violation for inadequate design control and two Severity Level IV violations.

Although these violations did not result in any actual impact on the public health and safety, the circumstances surrounding these violations represent significant regulatory concerns. In particular, licensee management failed to exercise effective oversight in several areas that are each of vital importance in assuring the safe operation of a nuclear facility. Operations management was unaware that essentially all control room shifts were routinely violating an operating curve, yet these violations were being committed in attempts by operators to meet a chemistry goal set by senior management. Furthermore, despite the fact that the safety adequacy of the curve was formally questioned in a problem report by licensed operators, not only did management not require that the safety concern be resolved promptly, but management insisted that the plant be maintained at a hydrogen concentration that resulted in operating on or near the maximum point of the questioned curve during the several months the issue was being considered. The operating environment maintained contributed to the perceived need to conduct the September 4-5, 1994 evolutions to resolve the matter.

Management oversight of engineering failed to ensure that the safety concern raised by licensed operators -- stated by the licensee not to be a routine occurrence -- with an engineering-derived curve was not aggressively pursued with a high degree of rigor. Not only did engineering fail to address the concern promptly, despite the fact that the plant was then operating in the very area of the curve questioned by the operators, but also the conclusion reached by engineering was wrong because calculational assumptions and evaluations failed to consider fundamental principles (e.g., gas absorption). These engineering performance inadequacies are of even greater concern because the questioned curve, although known by some engineers to be a design basis curve, had not been identified to operations as such and was being used as an operating curve even as its safety adequacy was in dispute. Furthermore, once the curve was confirmed to be wrong, the actions taken to correct the problem were repeatedly inadequate.

Corrective action inadequacies were also demonstrated in the licensee's review of the September 5, 1994 evolution. Although several individuals within both the operations and engineering departments had knowledge of a similar evolution conducted on the previous day, the licensee's investigation was limited to interviews only with the two senior reactor operators on shift, and did not identify the occurrence of the previous evolution. A detailed event review and root cause analysis was not performed. Moreover, it was not until August 1995, about a year after the event, that a more comprehensive investigation was conducted into this matter.

The NRC is very concerned about the ineffective management oversight of engineering, operations, and corrective action activities demonstrated by these violations. The NRC expects licensees to promptly address safety concerns, especially those raised by licensed operators, and to resolve them with a high degree of rigor. You did not meet these expectations in this case: managers appeared insensitive to safety concerns and did not aggressively pursue them, engineers overlooked basic scientific principles and produced inaccurate analyses, and investigations failed to identify important case facts and underlying root causes. In consideration of the high regulatory significance that the NRC finds in these violations, I have been authorized, after consultation with the Director, Office of Enforcement, the Deputy Executive Director for Reactor Regulation, Regional Operations and Research, and the Commission, to issue the enclosed Notice of Violation and Proposed Imposition of Civil Penalties in the total amount of $500,000 for the violations discussed above. The assessment process for these penalties is more fully discussed in Enclosure 1.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. In your response, you should document the specific actions taken and any additional actions you plan to prevent recurrence. After reviewing your response to this Notice, including your proposed corrective actions and the results of future inspections, the NRC will determine whether further NRC enforcement action is

necessary to ensure compliance with NRC regulatory requirements. I further note that the NRC is continuing to review whether there were other unauthorized evolutions at Crystal River, and further enforcement actions may be taken if additional violations are identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response will be placed in the NRC Public Document Room (PDR). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction.

Should you have any questions concerning this letter, please contact us.

Sincerely,

Stewart D. Ebneter FOR
Regional Administrator

Docket No. 50-302
License No. DPR-72

Enclosures:
(1) Description of Violations
(2) Notice of Violation and Proposed Imposition of Civil Penalties

cc w/encls:
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Description of Violations

A. Failure to Follow Procedures

Violation A in Part I of the Notice involves nine instances where operators violated plant procedures for maximum MUT overpressure. Specifically, during the period July 23 through September 5, 1994, operators, while adding hydrogen to the MUT for RCS chemistry control, exceeded the maximum MUT overpressure limit as defined by OP-103B, Curve 8 on numerous occasions. In addition, when plant alarms annunciated during these additions, indicating that the overpressure limit had been exceeded, operators failed to take timely action to reduce pressure to within the acceptable operating region. In one case, operation outside of the acceptable region persisted for a period of approximately three hours.

The violation is of significant potential safety consequence, in that, unknown to the operations staff at the time of the violation, OP-103B, Curve 8 was a design basis limit established for the protection of Emergency Safeguards pumps in the event of a loss of coolant accident (LOCA). Had an Engineered Safeguards actuation occurred while the MUT pressure was in the unacceptable region of OP-103B, Curve 8, pump cavitation and subsequent inoperability of one train of high pressure injection (HPI) could have occurred. Your analysis found that the one train of HPI subject to inoperability because of exceeding OP-103B, Curve 8, is necessary equipment for accident mitigation for the specific design basis event of a core flood line LOCA concurrent with a loss of offsite power and the failure of one emergency diesel generator. From a regulatory standpoint, this violation is of substantial concern in that it was indicative of a lack of management awareness of control room activities. Essentially, 100 percent of the licensed operators on shift had exceeded OP-103B, Curve 8, and failed to take timely action in response to a valid alarm, in part, due to management directives to maintain MUT pressure as high as possible to meet chemistry goals for RCS hydrogen concentration, despite voiced and documented operator concerns with maintaining elevated MUT pressure. Therefore, in accordance with the "General Statement of Policy and Procedures for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600, Violation A in Part I of the Notice has been categorized as a Severity Level III violation.

In accordance with the Enforcement Policy, a base civil penalty in the amount of $50,000 is considered for a Severity Level III violation. Because your facility has been the subject of escalated enforcement action within the last two years[1], the NRC considered whether credit was warranted for *Identification* and *Corrective Action* in accordance with the civil penalty assessment process described in Section VI.B.2 of

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[1]A Notice of Violation and Proposed Imposition of Civil Penalty in the amount of $25,000, was issued on March 24, 1995, associated with non-conservative setpoints for safety related equipment (EA 95-016). A Notice of Violation was also issued on February 16, 1994, associated with employee discrimination by a contractor employed by FPC (EA 93-226).

the Enforcement Policy. In this case, the NRC has concluded that credit for *Identification* would not be appropriate in that information related to this violation was not identified through your internal company efforts. At the conference, you stated that in direct response to this violation, a new management position was created to focus solely on the oversight and assessment of control room shift operations and administrative procedures for alarm response were revised. You stated further that many of the actions taken in response to the September 4 and 5, 1994, evolutions also served to correct this violation. However, in considering all of the facts in the case, the NRC concluded that credit for the factor of *Corrective Action* is not appropriate in that these actions were not prompt. Specifically, the violation occurred over a significant period of time without detection by FPC management; and following the September 5, 1994, evolution, you failed to fully investigate the operational information available to you to establish the extent of non-compliance with OP-103B, Curve 8, the human factors problems associated with MUT operations, and the existence of an operating environment which contributed to the occurrence of this situation. In view of these facts, a civil penalty of $100,000, twice the base, is being assessed for this violation.

B. Conduct of Unauthorized Tests

Violation B in Part I of the Notice involves the conduct of unauthorized tests of MUT overpressure without preparation of the required written safety evaluations, contrary to 10 CFR 50.59. On September 4 and 5, 1994, operators planned and executed evolutions, not required by plant conditions, to collect data in order to test the validity of an operating curve, specifically, OP-103B, Curve 8. In performing these unauthorized tests, procedures also were violated when the operators permitted the MUT pressure to exceed the acceptable operating region defined by OP-103B, Curve 8 and failed to take timely action to restore MUT pressure to within limits when a valid alarm was received. In fact, during the evolutions, operators continued to take actions (i.e., decreasing MUT level) which caused MUT pressure to diverge further into the unacceptable region of OP-103B, Curve 8 in order to collect data to support their safety concern. On November 16, 1994, the licensee's evaluation determined that OP-103B, Curve 8 was in error, was non-conservative, and was a design basis limit. Therefore, during these unauthorized tests, the design basis limits for pressure/level of the MUT were exceeded.

Although this violation resulted from the independent actions of a single shift operating crew, FPC as the employer of the operators involved bears responsibility for their actions as employees. FPC also is culpable in this matter because of its failure to recognize and change the operating environment which contributed to the occurrence of the violation. As discussed above, at the time these evolutions occurred, management appeared to accept operators routinely exceeding OP-103B, Curve 8 in order to achieve senior management mandated chemistry control goals. This violation is of substantial concern, not only because a design basis limit was exceeded with its associated potential safety consequences, but also because of FPC's failure to definitively establish limitations on the authority of the Shift

Supervisor and the operating envelope in which he and members of his crew were expected to operate. Therefore, in accordance with the Enforcement Policy, Violation B in Part I of the Notice has been categorized as a Severity Level III violation.

For Violation B in Part I of the Notice, the NRC similarly considered whether credit was warranted for *Identification* and *Corrective Action*. The NRC concluded credit was not warranted for *Identification*, for although you identified the unauthorized test on September 5, 1994, your initial investigation was inadequate to identify the occurrence of September 4, 1994. Despite knowledge by staff in operations and engineering, it was not until June of 1995 that you became aware of the second test. Your more comprehensive investigation conducted in August 1995 should have been conducted much earlier. Your corrective actions following identification of the September 5, 1994, test included: (1) establishment of a Management Review Committee to review the event; (2) counseling of the operations crew involved as well as briefing and enhanced training of all operating crews on the event and management expectations; (3) issuance of standing orders to maintain MUT pressure at a specified margin below OP-103B, Curve 8; and (4) review of other OP-103B curves for operational constraints.

Following identification of the September 4, 1994, test, you took the following actions: (1) formal disciplinary action including termination of the licenses of four of the operators involved in the unauthorized tests; (2) initiation of the August 1995 investigation; (3) procedural changes providing additional guidance on infrequently performed evolutions; (4) reinforcement of logkeeping practices; and (5) additional training for operations personnel on shift supervisor authority. Based on the above, the NRC determined that credit for *Corrective Action* was warranted, which would normally result in a base civil penalty. However, the NRC considers this violation to be of high regulatory significance. Also, your initial investigation failed to determine that an additional test had been performed, and failed to identify that at least one other shift supervisor continued to believe that such evolutions were within the authority of the Shift Supervisor. For these reasons the NRC is exercising discretion in accordance with Section VI.B.2.d of the Enforcement Policy and is assessing a civil penalty of $100,000 for this Severity Level III violation.

C. Corrective Action Violations

Violations C.1 and C.2 in Part I of the Notice involve your failure to take adequate actions to correct design deficiencies associated with the MUT maximum overpressure curve. Regarding Violation C.1, operators had expressed concerns regarding OP-103B, Curve 8, and the concerns were formally documented in a May 1994 Problem Report (PR) following a failed high pressure injection flow surveillance test. Engineering reviews associated with the PR failed to identify errors and improper assumptions in the OP-103B, Curve 8 calculations. The errors were subsequently identified during engineering evaluations performed following initiation of PR 94-0267 which documented the results of the operators' unauthorized test on September 5, 1994.

This violation was caused by inadequate engineering review of the calculations which formed the basis of OP-103B, Curve 8, and management's ineffectiveness in ensuring that the operations and engineering departments worked together effectively to resolve the documented safety issues regarding OP-103B, Curve 8. At the conference you stated that safety concerns by reactor operators were not routine occurrences. However, instead of promptly and aggressively resolving their concern, the issue persisted without insistence by senior management for resolution. Rather, management continued to focus on maintaining a reactor coolant system hydrogen concentration that resulted in operation at or near the maximum allowable MUT pressure, which contributed to the operators' perceived need to conduct the tests in order to gather the data necessary to support their asserted safety concern. In addition, management's overall ineffectiveness in this matter contributed to continued, periodic operation outside the design basis for routine evolutions. Therefore, in accordance with the Enforcement Policy, Violation C.1 in Part I of the Notice has been categorized as a Severity Level III violation.

In assessing the appropriate civil penalty for Violation C.1 in Part I of the Notice, both *Identification* and *Corrective Action* were considered. It was concluded that credit was not warranted for *Identification* because the NRC identified the violation. Regarding *Corrective Action*, at the conference, you stated that your corrective actions for the violation included: (1) counselling of the engineers involved; (2) initiation of a third party review of design calculations; (3) interdisciplinary review and sign-off of design calculations which included operations and system engineering; (4) formation of a design engineering review board; (5) establishment of a management, single point of accountability for important technical issues; and (6) relocation of design engineering to the site. Although the NRC acknowledges these corrective actions, it was concluded that credit for *Corrective Action* was not warranted. This conclusion was based on the fact that beginning in May 1994 with the issuance of PR 94-0149 ample opportunities existed for appropriately addressing and resolving the safety concern raised by the operators; yet this was not done. Further, had the issues with regard to the PR been resolved satisfactorily, Violation C.2 in Part I of the Notice would have been avoided. Therefore, a civil penalty in the amount of $100,000 is assessed for this violation.

Regarding Violation C.2, following the September 5, 1994, unauthorized test, two separate short term instructions (STI) were issued to operators requiring MUT pressure to be maintained at a specified margin below OP-103B, Curve 8 in order to ensure the plant was operated within the design basis until a revised curve could be issued. The revised curves, OP-103B, Curves 8A and B were issued on January 30, 1995. However, on January 31, 1995, you again identified that compliance with the STIs and the revised OP-103B, Curves 8A and 8B would not assure operation within the design basis due to a discrepancy between Emergency Operating Procedure (EOP) requirements and the design assumptions for the curves. To ensure an appropriate operating margin, another STI was issued on January 31, 1995, requiring maintenance of MUT pressure 7-11 pounds per square inch below the newly issued OP-103B, Curves 8A and B.

This violation further exemplifies the ineffectiveness of the technical reviews associated with the MUT issue and management's inability to effect the proper and lasting corrective actions necessary for assuring the operability of equipment required to mitigate the consequences of an accident. Therefore, in accordance with the Enforcement Policy, Violation C.2 in Part I of the Notice also has been categorized as a Severity level III violation.

In applying the civil penalty assessment process to Violation C.2 in Part I of the Notice, the NRC determined that credit was warranted for the factor of *Identification* in that the licensee appropriately identified and reported the erroneous STIs and revised Curves 8A and 8B and the potential for further operation outside the design basis. In evaluating *Corrective Action*, the NRC considered the corrective actions previously described for Violation C.1 in Part I of the Notice. Based on this information, the NRC concluded that credit was not warranted for Corrective Action, due to the repetitive failures to institute a MUT overpressure curve which was technically correct and appropriately conservative to ensure that the operators could operate within the plant's design basis. Based on these determinations, the base civil penalty normally would be assessed for this violation. However, in consideration of the multiple failures to correct the curve that are indicative of the unacceptable performance of the licensee in resolving this issue, the NRC is exercising discretion in accordance with Section B.2.d of the Enforcement Policy and is assessing a civil penalty of $100,000 for this Severity Level III violation.

D. Design Control Violations

Violations D.1 and D.2 in Part I and Violation A in Part II of the Notice involve the failure to incorporate the design basis of the ECCS into plant procedures as well as the Final Safety Analysis Report (FSAR). Violation D.1 in Part I of the Notice, involves your failure to assure that, from the time OP-103B, Curve 8 was procedurally established in January 1993 until issuance of the STI on September 9, 1994, an adequate safety margin was provided to ensure the availability of HPI for certain LOCA scenarios. The NRC is particularly concerned with this violation which reflects the inadequate engineering and technical efforts that went into the development of OP-103B, Curve 8. Specifically, evaluations and assumptions which formed the technical basis for the MUT overpressure calculations failed to consider fundamental engineering principles (e.g., gas absorption) which resulted in significant errors in OP-103B, Curve 8. In addition, although known to certain engineers, no one informed operations and personnel using OP-103B, Curve 8 that it was a design basis limit rather than an administrative limit. These violations resulted from fundamental engineering errors and lack of attention to detail and significantly contributed to the other violations described herein; therefore, this violation has been categorized as a Severity Level III violation.

In assessing the civil penalty to be applied to Violation D.1 in Part I of the Notice, the NRC concluded that credit was warranted for *Identification* in that the violation was identified as a result of the licensee's follow-up to PR 94-0267 which documented the results of the

September 5, 1994, unauthorized test. At the conference, you stated that corrective actions for this violation were similar to those instituted for the violations in Part I.C of the Notice. In addition, you issued a revised version of the MUT pressure/level curve on October 5, 1995. Although upon identification of the deficiency you took immediate actions to issue an STI to provide an adequate operating margin for the MUT, the actions were ineffective and required multiple attempts until a revised curve was issued. Therefore, it has been determined that credit for the factor of *Corrective Action* is not warranted, resulting in the base civil penalty of $50,000 for this Severity Level III violation.

Regarding Violation D.2 in Part I of the Notice, the FSAR and implementing EOPs directed that the swap over of the ECCS pumps' suction from the borated water storage tank (BWST) to the reactor building sump be initiated at the five foot level in the BWST. This BWST level was too low to ensure that the swap over from the BWST to the reactor building sump would occur in time to prevent vortexing in the BWST and to ensure an adequate net positive suction head for the ECCS pumps during post-LOCA operations. This violation is of significant potential safety consequence in that it could have resulted in gas entrainment in the ECCS pumps causing them to be potentially inoperable and unavailable for accident mitigation. In addition, the NRC is concerned that justification for the five foot swap over level was documented in an informal manner through an internal engineering memorandum, rather than through a formal revision to the engineering calculation. Therefore, this violation has been characterized as a Severity Level III violation.

For Violation D.2 in Part I of the Notice, the NRC determined that credit was not warranted for *Identification* because the issue was identified through NRC inspection effort. In addition to the corrective actions previously described, on February 2, 1995, STI 95-011 was issued followed by February 3, 1995, revisions to EOP-07 and 08 to reflect that the swap over should be initiated at 15 feet and completed by 7 feet, BWST level. Given your timely action to evaluate the violation and issue revised procedures to correct the procedural deficiencies, the NRC concluded that credit was warranted for *Corrective Action*, resulting in a base civil penalty of $50,000 for this violation.

For Violation A in Part II of the Notice, the EOPs failed to incorporate the design basis of the ECCS during certain post LOCA conditions requiring both low pressure injection (LPI) and HPI. Specifically, under the conditions in which only one LPI pump was available, the EOPs directed the operators to cross connect the HPI suction header thus, allowing the single LPI pump to be aligned and to provide flow to the reactor vessel as well as to the suction of two HPI pumps. As a result, an inadequate water inventory would be available to provide adequate net positive suction head once the suction source for the LPI was swapped over to the reactor building sump. This procedural error could have resulted in the loss of the only operable LPI pump, thus, the plant operated outside of its design basis. Therefore, in accordance with the Enforcement Policy, this violation is being categorized as a Severity Level III violation. The root cause of this violation was insufficient review by design engineering during the EOP revision process.

In considering the civil penalty to be applied for Violation A in Part II of the Notice, the NRC determined that credit was warranted for *Identification* because you identified the violation as a result of your corrective actions associated with previous MUT issues and appropriately reported it to the NRC. Regarding the factor of *Corrective Action*, at the conference, you advised that you have instituted design and system engineering reviews of operating procedure revisions. In addition, upon identification, immediate actions were taken to implement STI 95-022 and initiate appropriate revisions to the affected EOPs. The final revisions to the EOPs were effective June 9, 1995. Based on these actions, the NRC determined that credit was warranted for *Corrective Action*; therefore, no civil penalty will be assessed for this violation.

E. Other Violations

In addition, Part II of the Notice includes two Severity Level IV violations. The violations involve: (1) the failure to implement timely corrective actions for a previous emergency diesel generator fuel oil tank level deficiency which could have identified earlier the BWST level swap over issue identified in Violation D.2 in Part I of the Notice; and (2) the failure of your fire protection surveillance procedures to verify the minimum required water volume for the fire water storage tanks. Both violations involved untimely corrective actions for Licensee Event Report (LER) No. 92-003.

NOTICE OF VIOLATION
AND
PROPOSED IMPOSITION OF CIVIL PENALTIES

Florida Power Corporation
Crystal River Nuclear Plant
Unit 3

Docket No 50-302
License No. DPR-72
EA 95-126

During NRC inspections conducted during the period September 5, 1994, through December 15, 1995, and Office of Investigations investigations completed on May 24, 1995, and February 13, 1996, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedures for NRC Enforcement Actions," NUREG-1600, the Nuclear Regulatory Commission proposes to impose civil penalties pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. 2282, and 10 CFR 2.205. The particular violations and associated civil penalties are set forth below:

I. Violations Assessed Civil Penalties

A. Technical Specification 5.6.1.1 requires, in part, that procedures be implemented covering activities as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, of February 1978. Appendix A recommends administrative procedures to cover the authorities and responsibilities for safe operation and shutdown, and operating procedures for the reactor coolant system make-up system. The licensee implemented the above Appendix A recommendations, in part, through Procedure AI-500, "Conduct of Operations," and Procedure OP-402, "Make-up and Purification System."

AI-500, Revisions (Rev.) 80, 81, and 82, Step 4.3.1.1, stated that it is the duty of every member of the Crystal River Plant work force to comply with procedures. In addition, Step 6 of Enclosure 27 stated that it is the responsibility of the Chief Nuclear Operator to ensure that plant evolutions do not violate administrative controls. Procedure OP-402, Rev. 75, Step 4.19.9, required that operators ensure that the make-up tank pressure limits of OP-103B, Curve 8, are not exceeded when adding hydrogen to the make-up tank by manually bypassing the 15 pounds per square inch gauge (psig) hydrogen regulator. Procedure OP-402, Step 4.19.8, required that operators refer to Curve 8 of OP-103B for maximum make-up tank overpressure when adding hydrogen to the make-up tank through the 15 psig hydrogen regulator. Procedure OP-103B, Curve 8, Maximum Make-up Tank Overpressure, Rev. 12, defined the acceptable make-up tank pressure versus level operating region. Procedure AR-403, "PSA-Z Annunciator Response," Annunciator H-04-06, Make-up Tank Pressure High/Low, Rev. 21, required operators to take action to reduce make-up tank pressure to within the limits of OP-103B, Curve 8, when a valid alarm is received.

Contrary to the above, operators failed to meet the requirements of Procedure AI-500 to comply with procedures and administrative controls related to maximum make-up tank pressure on numerous

Enclosure 2

occasions during the period June 1, 1994, through September 4, 1994, as evidenced by the following examples:

(1) The limits of OP-103B, Curve 8 for acceptable make-up tank pressure were exceeded on July 23, 1994, for approximately 122 minutes continuously, from approximately 12:13 to 2:14 p.m.; on July 25, 1994, for approximately 48 minutes continuously, from approximately 10:27 to 11:14 a.m.; on July 27, 1994, for approximately 78 minutes continuously, from approximately 2:44 to 4:01 p.m.; on July 28, 1994, for approximately 184 minutes continuously, from approximately 2:26 to 5:29 p.m.; on July 30, 1994, for approximately 190 minutes continuously, from approximately 9:28 a.m. to 12:38 p.m.; on August 6, 1994, for approximately 141 minutes continuously, from approximately 9:55 a.m. to 12:15 p.m.; on August 8, 1994, for approximately 67 minutes continuously, from approximately 10:08 to 11:14 a.m.; on August 24, 1994, for approximately 87 minutes continuously, from approximately 1:24 to 2:50 p.m.; and, on September 4, 1994, for approximately 86 minutes continuously, from approximately 3:21 to 4:46 p.m.

(2) Procedure OP-402, Step 4.19.9, was not complied with on July 27, July 28, July 30, August 6, August 8, August 24, and September 4, 1994, in that the make-up tank pressure exceeded the limits of OP-103B, Curve 8, while adding hydrogen to the make-up tank by manually bypassing the 15 psig hydrogen regulator. Also, OP-402, Step 4.19.8, was not complied with on July 23, 1994, in that the make-up tank pressure exceeded the limits of OP-103B, Curve 8, while adding hydrogen to the make-up tank through the 15 psig hydrogen regulator.

(3) Procedure AR-403, Annunciator H-04-06, was not followed on July 23, July 25, July 27, July 28, July 30, August 6, August 8, August 24, and September 4, 1994, in that timely action was not taken to reduce make-up tank pressure to within the limits of OP-103B, Curve 8, when a valid alarm was received. (01013)

This is a Severity Level III problem (Supplement I)
Civil Penalty - $100,000

B. 10 CFR 50.59, "Changes, Tests, and Experiments," in part, allows the licensed facility to conduct tests not described in the safety analysis report, without prior Commission approval, unless the proposed test involves an unreviewed safety question. A proposed test shall be deemed to involve an unreviewed safety question if the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report may be increased. The

licensee shall maintain records of tests carried out pursuant to this section, including a written safety evaluation which provides the basis for the determination that the test does not involve an unreviewed safety question.

Contrary to the above, on September 4 and 5, 1994, operators conducted tests not described in the safety analysis report, without written safety evaluations to provide a basis for a determination that the tests did not involve an unreviewed safety question. Specifically, operators conducted tests in that they performed evolutions involving make-up tank pressure and level, not required by plant conditions, to collect data. (02013)

This is a Severity Level III violation. (Supplement I)
Civil Penalty - $100,000

C. 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," states, in part, that measures shall be established to assure that conditions adverse to quality, such as nonconformances, are promptly identified and corrected. In the case of significant conditions adverse to quality, measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition.

(1) Contrary to the above, significant conditions adverse to quality were not promptly identified and corrected, and action was not taken to preclude repetition. Specifically, the licensee failed to perform an adequate review of Problem Report 94-0149, issued on May 10, 1994, that identified licensed operator concerns with the accuracy of OP-103B, Curve 8. The review failed to identify promptly the significant errors that were present in OP-103B, Curve 8 and in the calculations that were the basis for the curve. As a result, plant operations using the curve frequently were outside the design bases of the facility. (03013)

This is a Severity Level III violation (Supplement I)
Civil Penalty - $100,000

(2) Contrary to the above, significant conditions adverse to quality were not promptly identified and corrected, and action was not taken to preclude repetition. Specifically, Short Term Instruction (STI) 94-019 issued on September 9, 1994, STI-021 issued on September 11, 1994, and Revision 13 to OP-103B, "Plant Operating Curves," issued on January 30, 1995 were corrective actions once problems with the make-up tank overpressure curve were identified but were inadequate to prevent operation outside of the design basis. (04013)

This is a Severity Level III violation (Supplement I)
Civil Penalty - $100,000

D. 10 CFR Part 50, Appendix B, Criterion III, "Design Control," in part, requires that measures be established to assure that applicable regulatory requirements and the design basis, as defined in 10 CFR 50.2, "Definitions," and as specified in the license application, are correctly translated into procedures and instructions.

(1) Contrary to the above, the design basis was not correctly translated into drawings, procedures, and instructions. Specifically, between approximately April 1993 and September 9, 1994, make-up tank procedure limits for make-up tank pressure failed to meet the emergency core cooling system design basis in that Procedure OP-103B, Curve 8, "Maximum Make-up Tank Overpressure," Rev. 12, did not provide adequate margin to ensure that hydrogen entrainment in the high pressure make-up pumps was prevented when the make-up tank was operated within the specified pressure and level limits. (05013)

This is a Severity Level III violation (Supplement I)
Civil Penalty - $50,000

(2) Contrary to the above, the design basis was not correctly translated into drawings, procedures, and instructions. Specifically, between initial operation on March 13, 1977, and February 2, 1995, except for the time period of June 1990 through April 1993, the licensee failed to correctly translate the design basis for the emergency core cooling system into the Final Safety Analysis Report, Section 6.1.2.1.2; Procedure EOP-07, "Inadequate Core Cooling;" and Procedure EOP-08, "LOCA Cooldown." The Final Safety Analysis Report, Section 6.1.2.1.2; EOP-07; and EOP-08 failed to meet the design basis in that the manual swap over from the borated water storage tank to the reactor building sump was directed to be initiated at a level of five feet or less in the borated water storage tank, which was insufficient to assure that all of the emergency core cooling system pumps would not be damaged by air entrainment from vortexing in the borated water storage tank. Additionally, the licensee had no official design calculation to support the swap over level of five feet that was incorporated into emergency operating procedures in April 1993. The official calculation, I90-0024, supported a swap over level equivalent to approximately 14 feet in the borated water storage tank. An internal engineering memorandum was inappropriately used to support the swap over level of five feet. (06013)

This is a Severity Level III violation (Supplement I)
Civil Penalty - $50,000

II. Violations Not Assessed a Civil Penalty

A. 10 CFR Part 50, Appendix B, Criterion III, "Design Control," in part, requires that measures be established to assure that applicable regulatory requirements and the design basis, as defined in 10 CFR 50.2, "Definitions," and as specified in the license application, are correctly translated into procedures and instructions.

Contrary to the above, the design basis was not correctly translated into drawings, procedures, and instructions. Specifically, between April 8, 1993, and March 22, 1995, Procedures EOP-07 and EOP-08 failed to meet the emergency core cooling system design basis. Specifically, during post loss-of-coolant accident operation with one low pressure injection pump and two high pressure injection pumps operating, and with the high pressure injection pump suction crosstie valve open, as directed by Procedures EOP-07 and EOP-08, the licensee's engineering calculation M90-0021, Rev. 5, dated March 22, 1995, indicated that the water inventory in the reactor building sump would not have provided adequate net positive suction head to the one low pressure injection pump. This lineup could result in the loss of the only operable low pressure injection pump. (07013)

This is a Severity Level III violation (Supplement I)

B. 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," states, in part, that measures shall be established to assure that conditions adverse to quality, such as nonconformances, are promptly identified and corrected. In the case of significant conditions adverse to quality, measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition.

Contrary to the above, conditions adverse to quality were not promptly identified and corrected, and action was not taken to preclude repetition. Specifically, the licensee failed to identify the root cause and take steps to preclude repetition of a significant condition adverse to quality related to the emergency diesel generator fuel oil tank levels initially identified in License Event Report No. 92-003, dated May 15, 1992. As of March 27, 1996, corrective actions to determine the relationship of suction point to tank level for other tanks having a Technical Specification required minimum volume including the borated water storage tank had not been implemented. A timely review of the calculation of the borated water storage tank volume could have resulted in earlier identification and correction of the inadequacy with the borated water storage tank level for manual

swap over of emergency core cooling system pumps' suction from the borated water storage tank to the reactor building sump. (08014)

This is a Severity Level IV violation (Supplement I).

C. Crystal River Facility Operating License No. DPR-72, Paragraph 2.C.(9), Fire Protection, required that the licensee implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report for the facility.

Final Safety Analysis Report, Section 9.8 stated that the fire protection program has been formulated in accordance with specific fire protection governing documents listed in Final Safety Analysis Report Table 9-18. Table 9-18 included the Fire Protection Plan.

The Fire Protection Plan, Table 6.1.a, Rev. 11, Water Supply Operability Requirements, Compensatory Measures and Reports, required that at all times there be two separate water supplies, each with a minimum water volume of 345,000 gallons. Table 6.1.b, Water Supply Surveillance Requirements, stated: verify minimum required water volume of 345,000 gallons in each fire water tank, which is implemented by Procedure SP-300, "Control Room Log Readings," Rev. 131.

The Fire Protection Plan, Section 7.8 stated, in part, that in the case of significant conditions adverse to fire protection, the cause of the condition is determined, analyzed, and prompt corrective actions are taken to preclude recurrence.

Technical Specification 5.6.1.1.C required that written procedures shall be established, implemented, and maintained covering the Fire Protection Program.

Contrary to the above, the licensee failed to establish an adequate procedure to verify the minimum required water volume of 345,000 gallons in each of two fire water storage tanks. Specifically, Procedure SP-300 required that the water level in the tank be verified to be 35 feet, which, under worst case conditions verified a volume of water less than required by the Fire Protection Plan as well as the Enhanced Design Basis Document. In addition, prompt corrective actions for Licensee Event Report No. 92-003, dated August 1, 1991, would have revealed this condition adverse to fire protection. (09014)

This is a Severity Level IV violation (Supplement I).

Pursuant to the provisions of 10 CFR 2.201, Florida Power Corporation (Licensee) is hereby required to submit a written statement or explanation to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission,

within 30 days of the date of this Notice of Violation and Proposed Imposition of Civil Penalties (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each alleged violation: (1) admission or denial of the alleged violation, (2) the reasons for the violation if admitted, and if denied, the reasons why, (3) the corrective steps that have been taken and the results achieved, (4) the corrective steps that will be taken to avoid further violations, and (5) the date when full compliance will be achieved. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as why the license should not be modified, suspended, or revoked or why such other action as may be proper should not be taken. Consideration may be given to extending the response time for good cause shown. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, this response shall be submitted under oath or affirmation.

Within the same time as provided for the response required above under 10 CFR 2.201, the Licensee may pay the civil penalties by letter addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, with a check, draft, money order, or electronic transfer payable to the Treasurer of the United States in the amount of the civil penalties proposed above, or the cumulative amount of the civil penalties if more than one civil penalty is proposed, or may protest imposition of the civil penalties in whole or in part, by a written answer addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission. Should the Licensee fail to answer within the time specified, an order imposing the civil penalties will be issued. Should the Licensee elect to file an answer in accordance with 10 CFR 2.205 protesting the civil penalties, in whole or in part, such answer should be clearly marked as an "Answer to a Notice of Violation" and may: (1) deny the violations listed in this Notice, in whole or in part, (2) demonstrate extenuating circumstances, (3) show error in this Notice, or (4) show other reasons why the penalties should not be imposed. In addition to protesting the civil penalties in whole or in part, such answer may request remission or mitigation of the penalties.

In requesting mitigation of the proposed penalties, the factors addressed in Section VI.B.2 of the Enforcement Policy should be addressed. Any written answer in accordance with 10 CFR 2.205 should be set forth separately from the statement or explanation in reply pursuant to 10 CFR 2.201, but may incorporate parts of the 10 CFR 2.201 reply by specific reference (e.g., citing page and paragraph numbers) to avoid repetition. The attention of the Licensee is directed to the other provisions of 10 CFR 2.205, regarding the procedure for imposing a civil penalties.

Upon failure to pay any civil penalty due which subsequently has been determined in accordance with the applicable provisions of 10 CFR 2.205, this matter may be referred to the Attorney General, and the penalty, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234c of the Act, 42 U.S.C. 2282c.

The response noted above (Reply to Notice of Violation, letter with payment of civil penalties, and Answer to a Notice of Violation) should be addressed to: James Lieberman, Director, Office of Enforcement, U.S. Nuclear Regulatory

Commission, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852-2738, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region II and to the Resident Inspector, Crystal River Nuclear Plant.

Because your response will be placed in the NRC Public Document Room (PDR), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. However, if you find it necessary to include such information, you should clearly indicate the specific information that you desire not to be placed in the PDR, and provide the legal basis to support your request for withholding the information from the public.

Dated at Atlanta, Georgia
this 10th day of July 1996

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

October 18, 1996

EA 95-126 and EA 96-185

Florida Power Corporation
Crystal River Energy Complex
Mr. P. M. Beard, Jr. (SA2A)
Sr. Vice President, Nuclear Operations
ATTN: Manager, Nuclear Licensing
15760 West Power Line Street
Crystal River, FL 34428-6708

SUBJECT: NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTIES - $500,000 (NRC Inspection Report Nos. 50-302/95-13 and 50-302/95-22 and Investigation Report Nos. 2-94-036 and 2-94-036S)

Dear Mr. Beard:

This will acknowledge receipt of your letter dated September 9, 1996, and your payment of the $500,000 civil penalty proposed by the NRC in our letter to Florida Power Corporation (FPC) dated June 10, 1996. We have evaluated your response and found that it meets the requirements of 10 CFR 2.201 and 10 CFR 2.205. However, two issues regarding your response to the subject Notice of Violation and Proposed Imposition of Civil Penalties (Notice) warrant additional discussion.

First, although your response to Violation B in Part I of the Notice adequately addressed the specific citation of operations staff performance with respect to 10 CFR 50.59 compliance and the conduct of unauthorized tests, subsequent inspection effort has identified that compliance with 10 CFR 50.59 is a broader issue that also encompasses engineering and the design review processes. As already discussed with you, these emerging issues will be the subject of a predecisional enforcement conference in the near future. In addition, because performance deficiencies described in our June 10, 1996, letter appear to be continuing, it is important for FPC to develop and implement an effective, performance measurement program to identify adverse trends and to monitor the effectiveness of corrective actions including the adequacy of training and management oversight. Such a program was discussed with you in a management meeting conducted on August 28, 1996. Please be advised that the NRC will monitor the progress of your implementation of this program to determine its effectiveness in improving overall plant performance.

Second, by letter dated August 6, 1996, NRC requested that you supplement your response to Violation B in Part I of the Notice for EA 95-126 to also address Unresolved Item (URI) 50-302/96-04-08 identified in our Inspection Report transmitted to you by letter dated June 17, 1996. This URI identified four additional tests, not described in the safety analysis report, for which safety evaluations were not documented as required by 10 CFR 50.59. The URI addressed: (1) tests conducted in the 1980s and 1990s which involved shutting off spent fuel pool cooling pumps to gauge heatup rate; (2) a test conducted on June 20, 1994, which involved shutting off the reactor cavity cooling

system supply pumps to gauge reactor cavity heatup rate; (3) a test conducted on January 10, 1994, which involved shutting off reactor building penetration cooling fans to gauge heatup rate; and (4) a test conducted in the early 1980s to assess instrument air system pressure decay by shutting off the compressors during plant operations.

Based on our original inspection findings and your response, we have determined that these four tests constitute violations of 10 CFR 50.59. Violation B in Part I of the Notice for EA 95-126 identified two examples of the failure to comply with the requirements of 10 CFR 50.59 by conduct of unauthorized tests on September 4 and 5, 1996. Due to the circumstances of each of the four additional tests and the similarity of the tests and their root cause to those conducted on September 4 and 5, 1994, the NRC has determined to disposition these four unauthorized tests as examples three, four, five, and six of Violation B in Part I of the Notice for EA 95-126.

No additional written response is required to address your actions associated with the subject enforcement action or the additional violations resulting from URI 50-302/96-04-08. We will continue to examine the implementation and adequacy of your corrective actions during future inspections. This letter also serves as closure for URI 50-302/96-04-08.

We appreciate your cooperation in this matter.

Sincerely,

Stewart D. Ebneter FOR
Regional Administrator

Docket No. 50-302
License No. DRP-72

cc:
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B. J. Hickle, Director
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cc (cont'd on Page 3)

cc (con'td):
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