May 29, 2003

Mr. J. A. Stall
Senior Vice President, Nuclear and
Chief Nuclear Officer
Florida Power and Light Company
P.O. Box 14000
Juno Beach, Florida 33408-0420

SUBJECT: SAINT LUCIE NUCLEAR PLANT, UNIT 2 - ORDER EA-03-009 RELAXATION REQUESTS NOS. 1 AND 2 REGARDING EXAMINATION COVERAGE OF REACTOR PRESSURE VESSEL HEAD PENETRATION NOZZLES (TAC NOS. MB8165 AND MB8166)

Dear Mr. Stall:

By letter dated March 28, 2003, Florida Power and Light Company (FPL) submitted two requests for relaxation from the inspection requirements of the U.S. Nuclear Regulatory Commission (NRC) Order EA-03-009 for St. Lucie Unit 2. Pursuant to the procedure specified in Section IV, paragraph F of the Order, FPL requested relaxation from the requirements specified in Section IV, paragraph C.(1)(b)(i) for the reactor pressure vessel head (RPVH) penetration nozzles for which ultrasonic testing requirements cannot be completed as required. Relaxation was also requested from the requirements specified in Section IV, paragraph C.(1)(a) for the area of the RPVH surface that is inaccessible for visual inspection.

These requests were discussed with the NRC staff in a public meeting on April 14, 2003, during which it was determined that additional information was needed. A Request for Additional Information was issued on April 18, 2003. FPL provided the additional information in a letter dated April 18, 2003. Following subsequent telephone discussions with the NRC staff, the requests were further supplemented in letters dated April 29, May 4 and May 11, 2003. The May 11, 2003, letter completely revised the previous requests and provided additional information based on actual inspection results.

We have reviewed and evaluated the information provided in support of your requests for relaxation and have found that FPL has demonstrated good cause for the requested relaxation. FPL has demonstrated that compliance with the Order would result in hardship without a compensating increase in the level of quality and safety. Therefore, pursuant to Section IV.F of the Order and Title 10, *Code of Federal Regulations*, Section 50.55a(a)(3), the NRC staff approves for one 18-month operating cycle, commencing with startup from the spring 2003 (SL2-14) refueling outage, your requests for relaxation and authorizes the proposed alternatives to item IV.C.(1)(b)(i) with respect to ultrasonic testing of RPVH penetration nozzles and item IV.C.(1)(a) with respect to bare metal visual examination of the RPVH surface at St. Lucie Unit 2, contingent on the following conditions:

a. If the NRC staff finds that the crack growth formula in industry report MRP-55 is unacceptable, the licensee shall revise its analysis that justifies relaxation of the Order within 30 days after the NRC informs the licensee of an NRC-approved crack growth formula. If the licensee's revised analysis shows that the crack

growth acceptance criteria are exceeded prior to the end of the current operating cycle, this relaxation is rescinded and the licensee shall, within 72 hours, submit to the NRC written justification for continued operation. If the revised analysis shows that the crack growth acceptance criteria are exceeded during the subsequent operating cycle, the licensee shall, within 30 days, submit the revised analysis for NRC review. If the revised analysis shows that the crack growth acceptance criteria are not exceeded during either the current operating cycle or the subsequent operating cycle, the licensee shall, within 30 days, submit a letter to the NRC confirming that its analysis has been revised.

b. Should there be any evidence of corrosive product upslope or downslope of the inaccessible areas, the relaxation is rescinded until such time that the licencee can provide adequate information to the staff that ensures that the RPVH is not degraded in the inaccessible areas.

Further details on the bases for the NRC staff's conclusions are contained in the enclosed safety evaluation. If you have any questions regarding this issue, please contact Brendan Moroney at (301) 415-3974.

Sincerely,

/RA/

Scott W. Moore, Acting Director
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-389

Enclosure: Safety Evaluation

cc: See next page

growth acceptance criteria are exceeded prior to the end of the current operating cycle, this relaxation is rescinded and the licensee shall, within 72 hours, submit to the NRC written justification for continued operation. If the revised analysis shows that the crack growth acceptance criteria are exceeded during the subsequent operating cycle, the licensee shall, within 30 days, submit the revised analysis for NRC review. If the revised analysis shows that the crack growth acceptance criteria are not exceeded during either the current operating cycle or the subsequent operating cycle, the licensee shall, within 30 days, submit a letter to the NRC confirming that its analysis has been revised.

B. Should there be any evidence of corrosive product upslope or downslope of the inaccessible areas, the relaxation is rescinded until such time that the licencee can provide adequate information to the staff that ensures that the RPVH is not degraded in the inaccessible areas.

Further details on the bases for the NRC staff's conclusions are contained in the enclosed safety evaluation. If you have any questions regarding this issue, please contact Brendan Moroney at (301) 415-3974.

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELAXATION REQUEST NO. 1 AND 2

FLORIDA POWER AND LIGHT COMPANY, ET AL.

SAINT LUCIE NUCLEAR PLANT, UNIT 2

DOCKET NO. 50-389

1.0 INTRODUCTION

By letter dated March 28, 2003, Florida Power and Light Company, et al. (FPL, the licensee) submitted two requests for relaxation from the inspection requirements of the U.S. Nuclear Regulatory Commission (NRC) Order EA-03-009 for St. Lucie Unit 2. Pursuant to the procedure specified in Section IV, paragraph F of the Order, FPL requested relaxation from the requirements specified in Section IV, paragraph C.(1)(b)(i) for the reactor pressure vessel head (RPVH) penetration nozzles for which ultrasonic testing requirements cannot be completed as required. Relaxation was also requested from the requirements specified in Section IV, paragraph C.(1)(a) for the area of the RPVH surface that is inaccessible for visual inspection.

These requests were discussed with the NRC staff in a public meeting on April 14, 2003, during which it was determined that additional information was needed. A Request for Additional Information was issued on April 18, 2003. FPL provided the additional information in a letter dated April 18, 2003. Following subsequent telephone discussions with the NRC staff, the requests were further supplemented in letters dated April 29, May 4 and May 11, 2003. The May 11, 2003, letter completely revised the previous requests and provided additional information based on actual inspection results.

2.0 REGULATORY EVALUATION

Order EA-03-009, issued on February 11, 2003, requires specific examinations of the reactor pressure vessel (RPV) head and vessel head penetration (VHP) nozzles of all pressurized water reactor plants. Section IV, paragraph F, of the Order states that requests for relaxation of the Order associated with specific penetration nozzles will be evaluated by the NRC staff using the procedure for evaluating proposed alternatives to the American Society of Mechanical Engineers Code in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(a)(3). Section IV, paragraph F, of the Order states that a request for relaxation regarding inspection of specific nozzles shall address the following criteria: (1) the proposed alternative(s) for inspection of specific nozzles will provide an acceptable level of quality and safety, or (2) compliance with this Order for specific nozzles would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

For St. Lucie Unit 2, and similar plants determined to have a high susceptibility to primary water stress corrosion cracking in accordance with Section IV, paragraphs A and B, of the Order, the

following inspections are required to be performed every refueling outage in accordance with Section IV, paragraph C.(1) of the Order:

(a) Bare metal visual (BMV) examination of 100 percent of the RPV head surface (including 360° around each RPV head penetration nozzle), AND

(b) Either:

(i) Ultrasonic testing of each RPV head penetration nozzle (i.e., nozzle base material) from two (2) inches above the J-groove weld to the bottom of the nozzle and an assessment to determine if leakage has occurred into the interference fit zone, OR

(ii) Eddy current testing or dye penetrant testing of the wetted surface of each J-Groove weld and RPV head penetration nozzle base material to at least two (2) inches above the J-groove weld.

Footnote 3 of the Order provides specific criteria for examination of repaired VHP nozzles.

3.0 TECHNICAL EVALUATION

3.1 Order Requirements for which Relaxation is Requested

Section IV.C.(1) of Order EA-03-009 requires, in part, that the following inspections be performed every refueling outage for high susceptibility plants similar to St Lucie Unit 2:

(a) Bare metal visual (BMV) examination of 100 percent of the RPV head surface (including 360° around each RPV head penetration nozzle), AND

(b) Either:

(i) Ultrasonic testing of each RPV head penetration nozzle (i.e., nozzle base material) from two (2) inches above the J-groove weld to the bottom of the nozzle and an assessment to determine if leakage has occurred into the interference fit zone, OR

(ii) Eddy current testing or dye penetrant testing of the wetted surface of each J-Groove weld and RPV head penetration nozzle base material to at least two (2) inches above the J-groove weld.

Request 1:

The licensee has requested relaxation from Section IV.C.(1)(b)(i) of the Order to perform ultrasonic testing (UT) of the RPV head penetration inside the tube from 2 inches above the J-groove weld to the bottom of the penetration. Specifically, the relaxation is related to UT examination of the bottom portion (threaded area) of all 91 Control Element Drive Mechanism (CEDM) penetration nozzles. Relaxation has not been requested for the remaining 11 RPV head penetrations (10 incore instrumentation penetrations and one RPV head vent line).

Request 2:

The licensee has requested relaxation from Section IV.C.(1)(a) of the Order to perform BMV examination of 100 percent of the RPV head surface. Specifically, the licensee is unable to comply with the 100 percent visual examination requirement due to inaccessibility of a small portion of the RPV head. The inaccessible areas are behind the twelve 6-inch wide shroud lugs and under the horizontal reflective metal insulation (RMI) support legs.

Both of these relaxations were requested for one 18-month operating cycle.

3.2 Licensee's Proposed Alternative Method

Request 1:

The licensee proposed to perform UT examination from 2 inches above the weld to below the weld to the extent possible. Nozzles that cannot be UT examined at least 0.41 inches below the weld would receive a supplemental outside diameter (OD) dye penetrant test (PT) extending from the end of the UT coverage to the bottom of the nozzle for approximately a 90° arc of the nozzle, centered on the downhill side of the nozzle.

Request 2:

The licensee proposes to achieve substantial compliance with the 100 percent requirement by conducting a BMV examination of the RPV head surface to the extent practical, excluding the inside of the 54 RPV stud holes. Specifically, the licensee stated that the examination will include a visual examination of 360° around each RPV head penetration nozzle for evidence of leakage and examination of approximately 99 percent of the bare head surface. The examination will include areas uphill and downhill of inaccessible areas identified by the licensee to be under the horizontal RMI support legs and under vertical panels at 12 shroud lug locations. The licensee stated that the BMV inspection will cover more area than was stated in the licensee's original relaxation request submitted on March 28, 2003. The additional coverage was obtained by removal of the 12 flashing panels attached directly under the shroud support ring, and lifting of the vertical insulation panels that were in contact with the RPV head base material to obtain visual access for remote equipment to inspect areas previously thought inaccessible.

3.3 Licensee's Basis for Relaxation

Request 1:

The licensee stated that the CEDM RPV nozzles have inside-threaded ends that are used to permanently attach externally-threaded guide cones which prevent UT examination to the bottom of the nozzle. According to the licensee, this design condition will prevent current UT examination technology available for CEDM nozzle inspections from collecting UT data to the end of the nozzles. The licensee stated that inspecting the nonpressure boundary area of the threaded portion of the CEDM nozzles would result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety. In particular, the threaded guide cones would have to be removed and special tooling would have to be developed to inspect the threaded nozzle surface in order to implement an inspection in accordance with Section IV,

paragraph C.(1)(b)(i) of the Order. The licensee originally requested relief to inspect from 2 inches above the weld to a minimum of 1 inch below the weld. The 1-inch minimum originally requested by the licensee in a letter dated March 28, 2003, was based on measurements taken from a generic Combustion Engineering Owners Group report. The licensee stated that, during the RPV head inspection, it was discovered that the distance from the toe of the weld on the OD of the nozzle to the start of the internally-threaded area (inside diameter (ID) of nozzle) on the downhill side of most of the CEDM nozzles was generally less than 1 inch.

As an alternative to the UT examination of Order Section IV.C.(1)(b)(i), compliance with Order EA-03-009 can be achieved by eddy current testing (ET) or PT of the wetted surfaces of each J-groove weld and RPV head penetration nozzle base material as described in Order Section IV.C.(1)(b)(ii). However, the licensee stated that its inspection vendor does not have the capability to perform ET, and preparation and performing PT would only be applicable to the outside diameter of the CEDM nozzles. Performing a PT on the outside surfaces would increase personnel radiation exposure. The licensee stated that implementation of surface examinations in accordance with Section IV.C.(1)(b)(ii) of the Order, creates a hardship.

The licensee stated that during its inspection of the 91 CEDM nozzles, there were 9 nozzles that had UT examination coverage less than 0.41 inches from the bottom of the J-groove weld. The 9 nozzles received a PT examination on the OD that overlapped the UT coverage area and extended to the bottom of the nozzle. The licensee stated that the PT enveloped the width (vertical) of UT coverage area that was less than 0.50 inches below the weld for these 9 nozzles. The circumferential width of the PT examination area was limited to 45° on each side of the 0° downhill location. The PT examination found no recordable indications on any of the nine nozzles. The licensee stated that performing PT on the aforementioned 9 nozzles resulted in a radiation exposure of approximately 2.45 person rem.

The licensee's request for the reduction of the examination coverage area is based on a flaw tolerance approach. The licensee stated that its approach will provide an acceptable level of quality and safety with respect to reactor vessel structural integrity and leak integrity. The basis for this approach is provided in Westinghouse Electric Co. LLC, WCAP-16038-P, Revision 0, March 2003, "Structural Integrity Evaluation of Reactor Vessel Upper Head Penetrations to Support Continued Operations: St. Lucie Unit 2."

The licensee stated that, for the limiting nozzle location, a postulated axial through-wall flaw at a distance of 0.28 inches from the bottom of the weld will take 18 months of operation to reach the weld. The licensee, therefore, asserts that a UT inspection that includes an area at least 0.41 inches below the weld will support one 18-month period of operation (one refueling cycle) for St. Lucie Unit 2 with at least an additional 19.4 months of operating margin (37.4 months total). The licensee stated that for the nine nozzles that had UT examination coverage less than 0.41 inches below the weld, a PT examination of these nozzles was performed and included areas that did not receive a minimum UT coverage of 0.50 inch. The licensee states that its analysis shows that a through-wall flaw that is 0.50 inch from the weld toe would take 5 years of operating time to propagate to the toe of the weld.

The licensee stated that according to its analysis, the stresses on the OD surface of the nozzle decrease rapidly as the distance below the weld increases. For the nozzles with limited coverage (intersection angles with the head of 33.8° and higher), the hoop stresses were reported by the licensee to be bounded by 31 ksi on the ID and 30 ksi on the OD at 0.41 inches

below the weld. This calculation is for an intersection angle of 29.1° and at higher intersection angles the stresses are lower.

The licensee stated that additional efforts to achieve the Order-required examination area (below the weld) will result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Request 2:

The licensee stated that inspecting 100 percent of the BMV examination required by the Order would result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety. The licensee stated that the lack of access created by the presence of the twelve 6-inch shroud lugs and the horizontal RMI panel support legs prevent a 100 percent BMV examination. The licensee stated that improving access to these inaccessible areas, including removal of the horizontal panel support legs for visual examination, would require major disassembly of the CEDM stacks and lifting of the shroud and shroud ring to allow access for the destructive RMI removal, resulting in a substantial increase in radiation dose and the potential for damage to removed components.

The licensee stated that in November 2001, during refueling outage SL2-13, a BMV examination was performed of the accessible portions of the RPV head inside the RMI, including 360° visual examination around each RPV head penetration nozzle, to identify leakage from the 102 penetrations. The licensee stated that there were no indications of staining leading downhill on the head surface or evidence of leakage identified around the 102 RPV head penetrations.

By letter dated April 29, 2003, the licensee committed to the following condition:

> Should there be any evidence of corrosive product upslope or downslope of the inaccessible areas, the relaxation is rescinded until such time that the licensee can provide adequate information to the staff that ensures that the RPVH is not degraded in the inaccessible areas.

During the current SL2-14 refueling outage, the licensee stated that the visual examination performed included approximately 99 percent of the RPV head excluding the aforementioned areas. The inspection included a 100 percent inspection (360°) of the RPV head and RPV nozzle interface areas. Head surfaces immediately uphill and downhill of the inaccessible areas were examined for evidence of boric acid leakage under the vertical insulation panels at 12 shroud lug locations, and horizontal RMI panel legs. The licensee stated that no evidence of corrosive products were identified.

The licensee concluded that a hardship or unusual difficulty without a compensating increase in level of quality and safety would result if physical modifications were performed to achieve the complete coverage of the RPV head base material required by the order.

3.4 Evaluation

Request 1

The NRC staff's review of this request was based on criterion (2) of paragraph F of Section IV of the Order, which states:

> Compliance with this Order for specific nozzles would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

In supporting its request for approval of a proposed alternative examination of the RPV penetration nozzles, the licensee has demonstrated the hardship that would result from implementing examinations to the bottom-end of these nozzles. The hardship identified by the licensee includes the nozzle configuration and the limitation of the UT probe used for nozzle examination. The staff finds that the nozzles' threaded areas that mate with guide cones make inspection of these nozzles in accordance with Order EA-03-009 very difficult and would involve a hardship. This evaluation focuses on the issue of whether there is a compensating increase in the level of quality and safety such that these nozzles should be inspected despite this hardship.

The licensee's request to limit the examination of the nozzle base material to at least 0.41 inches below the weld on the downhill side of the CEDM nozzles is appropriately supported by the licensee's analysis (WCAP-1608-P), which indicates that no flaw below that portion of the nozzle would propagate to a level adjacent to the J-groove weld within an 18-month operating period with a margin of 19.4 months. The 9 nozzles that have less than 0.41-inch examination coverage with UT and are supplemented to greater than 0.5 inches with PT of the OD surface have an 18-month operating period but the margin may be different from 19.4 months as stated by the licensee. UT examination is a volumetric examination of the base metal and gives a higher level of interrogation than a PT examination, which inspects the surface only, therefore the margin claimed by the licensee may be less than stated. However, the analysis assumes a through-wall flaw at 0.41 inches below the weld, and the PT examination to at least 0.5 inches below the weld means that the assumption is conservative. The licensee proposes to perform a UT examination to the extent possible, which has been shown to be a minimum of 0.30 inch on the downhill side of the CEDM nozzle 88. The supplemental PT examination technique was applied to CEDM nozzles 54, 59, 66, 70, 78, 86, 87, 88 and 91. The remaining 82 CEDM nozzles received UT examination to a minimum distance of 0.41 inches below the weld on the downhill side. For the 9 nozzles inspected to the requested minimum on the downhill side using a combination of UT and PT, the area that was UT examined was greater on the uphill side of the nozzles.

The aforementioned crack growth analysis used the approach described in Footnote 1 of the Order as the criteria to set the necessary height of the surface examination. Therefore, the coverage addressed by this request provides reasonable assurance of structural integrity of the component. However, this analysis incorporates a crack-growth formula different from that described in Footnote 1 of the Order, as provided in the Electric Power Research Institute Report, "Material Reliability Program (MRP) Crack Growth Rates for Evaluating Primary Water Stress Corrosion Cracking (PWSCC) of Thick Wall Alloy 600 Material (MRP-55), Revision 1." The NRC staff has completed a preliminary review of the crack-growth formula but has not yet made a final assessment regarding the acceptability of the report. If the NRC staff finds that

the crack-growth formula in industry report MRP-55 is unacceptable, the licensee shall revise its analysis that justifies relaxation of the Order within 30 days after the NRC informs the licensee of an NRC-approved crack-growth formula. If the licensee's revised analysis shows that the crack growth acceptance criteria are exceeded prior to the end of the current operating cycle, this relaxation is rescinded and the licensee shall, within 72 hours, submit to the NRC written justification for continued operation. If the revised analysis shows that the crack growth acceptance criteria are exceeded during the subsequent operating cycle, the licensee shall, within 30 days, submit the revised analysis for NRC review. If the revised analysis shows that the crack growth acceptance criteria are not exceeded during either the current operating cycle or the subsequent operating cycle, the licensee shall, within 30 days, submit a letter to the NRC confirming that its analysis has been revised. Any future crack-growth analyses performed for this and future cycles for RPV head penetrations must be based on an acceptable crack growth rate formula. The licensee accepted this condition by letter dated April 29, 2003.

The licensee did not provide calculated stress information directly applicable to all nozzles with coverage less than 0.5 inches below the weld. The licensee provided stress analysis of four intersection angles that represent the range of intersection angles on the RPV head. From the information provided by the licensee, the hoop stress at operating conditions for a nozzle with an intersection angle of 29.1° with the RPV head is 31 ksi on the ID surface and 29.3 ksi on the OD surface at 0.41 inches below the weld. Other information provided by the licensee indicates that the stress levels are reduced as the nozzle intersection angle with the RPV head increases, and the stress levels generally decrease rapidly as the location increases beyond 0.41 inches below the J-groove weld. Based on a review of the information provided by the licensee, it is likely that the areas uninspected by either UT or PT have operational hoop stress levels that are relatively low, possibly less than 25 ksi. Based on the results from the crack growth analysis and these expected stress levels, there is reasonable assurance of structural integrity for the uninspected portions of the nozzles. Therefore, performance of UT beyond 0.41 inches below the J-groove weld would result in hardship without a compensating increase in the level of quality and safety.

Request 2

The NRC staff's review of this request was based on criterion (2) of paragraph F of Section IV of the Order, which states:

> Compliance with this Order for specific nozzles would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

In supporting its request for approval of a proposed alternative examination to inspect less than 100 percent of the RPV head outer surface, the licensee has demonstrated that hardship would result from implementing a visual examination of 100 percent of the RPV head. The hardship identified by the licensee is caused by the inaccessible area on the RPV head because of twelve 6-inch shroud lugs and the horizontal RMI panel support legs. The staff finds that the access under the vertical insulation panels at the 12 shroud lug locations and the horizontal RMI support legs makes inspection of the RPV head in accordance with Order EA-03-009 very difficult and removal of the necessary interferences to accomplish the examination required by the Order would involve a hardship. This evaluation focuses on the issue of whether there is a compensating increase in the level of quality and safety such that the RPV head should be inspected in accordance with Order EA-03-009 despite this hardship.

The purpose of the BMV examination is to inspect for evidence of head penetration nozzle leakage as well as evidence of degradation on the vessel head surface. Since the examination covers approximately 99 percent of the head surface, including all areas adjacent to each of the head penetration nozzles and 100 percent of the RPV head penetrations 360° at the nozzle/RPV head interface, any evidence of nozzle leaks should be detected. In addition, the licensee's inspection covers those portions of the RPV head which are immediately upslope and downslope of the inaccessible areas. Evidence of boric acid leaks or corrosion would be visible in the examined areas. Therefore, the proposed alternative provides reasonable assurance of the structural integrity of the RPV head.

The licensee agreed by letter dated April 29, 2003 to the following condition:

> Should there be any evidence of corrosive product upslope or downslope of the inaccessible areas, the relaxation is rescinded until such time that the licensee can provide adequate information to the staff that ensures that the RPV head is not degraded in the inaccessible areas.

Because the alternative proposed by the licensee in the relaxation request provides reasonable assurance of structural integrity of the component, and subject to the aforementioned condition, the staff finds that the licensee has demonstrated hardship without a compensating increase in the level of quality and safety.

4.0 CONCLUSION

The staff concludes that the licensee's proposed alternative examination of 91 CEDM RPV head penetration nozzles to a level at least 0.41 inches below the J-groove weld (more area will be covered if possible) on the downhill side of the nozzles, and the proposed alternative examination coverage of approximately 99 percent BMV examination of the RPV head to include 100 percent of the RPV nozzles 360° at the nozzle/head interface and the areas upslope and downslope of the aforementioned inaccessible areas, provide reasonable assurance of the structural integrity of the RPV head, VHP nozzles, and welds. Further inspection of the VHP nozzles or RPV head surface in accordance with Sections IV.C.(1)(a) and IV.C.(1)(b)(i) of Order EA-03-009 would result in hardship without a compensating increase in the level of quality and safety. Therefore, pursuant to Section IV, paragraph F, of Order EA-03-009, good cause has been shown for relaxation of the Order, and the staff authorizes, for one 18-month operating cycle commencing with startup from the spring 2003 (SL2-14) refueling outage, the proposed alternative inspection for all CEDM head penetration nozzles and the RPV head surface at St. Lucie Unit 2, subject to the following two conditions that were agreed upon by the licensee by letter dated April 29, 2003:

b. If the NRC staff finds that the crack-growth formula in industry report MRP-55 is unacceptable, the licensee shall revise its analysis that justifies relaxation of the Order within 30 days after the NRC informs the licensee of an NRC-approved crack growth formula. If the licensee's revised analysis shows that the crack growth acceptance criteria are exceeded prior to the end of the current operating cycle, this relaxation is rescinded and the licensee shall, within 72 hours, submit to the NRC written justification for continued operation. If the revised analysis shows that the crack growth acceptance criteria are exceeded during the subsequent operating cycle, the licensee shall, within 30 days, submit the

revised analysis for NRC review. If the revised analysis shows that the crack growth acceptance criteria are not exceeded during either the current operating cycle or the subsequent operating cycle, the licensee shall, within 30 days, submit a letter to the NRC confirming that its analysis has been revised. Any future crack-growth analyses performed for this and future cycles for RPV head penetrations must be based on an acceptable crack growth rate formula.

c. Should there be any evidence of corrosive product upslope or downslope of the inaccessible areas, the relaxation is rescinded until such time that the licensee can provide adequate information to the staff that ensures that the RPV head is not degraded in the inaccessible areas. Since the licensee did not identify such evidence, this condition is moot.

Principal Contributors: Robert Davis, NRR
Allen Hiser, NRR

Date: May 29, 2003