

# Florida Power

CORPORATION  
Crystal River Unit 3  
Docket No. 50-302  
Operating License No. DPR-72

November 6, 1998  
3F1198-02

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

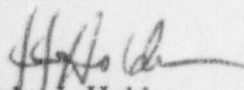
Subject: Response to Generic Letter 98-04, "Potential for Degradation of the Emergency Core Cooling System and the Containment Spray System After a Loss-of-Coolant Accident Because of Construction and Protective Coating Deficiencies and Foreign Material in Containment"

Dear Sir:

Generic Letter (GL) 98-04, "Potential for Degradation of the Emergency Core Cooling System and the Containment Spray System After a Loss-of-Coolant Accident Because of Construction and Protective Coating Deficiencies and Foreign Material in Containment," dated July 14, 1998, requested specific information to be provided to the NRC within 120 days of the date of the GL. Florida Power Corporation (FPC) is hereby submitting the requested information relative to the Crystal River Unit 3 Nuclear Generating Plant (CR-3). The information is provided in the Attachment to this letter. No regulatory commitments are made in this submittal.

Should you have any questions or require additional information concerning this response, please contact Ms. Sherry Bernhoft, Manager, Nuclear Licensing at (352) 563-4566.

Sincerely,

  
John J. Holden  
Director  
Site Nuclear Operations

JJH/lrm  
Attachment

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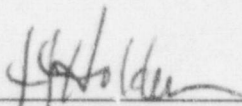
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xc: Regional Administrator, Region II  
NRR Project Manager  
Senior Resident Inspector

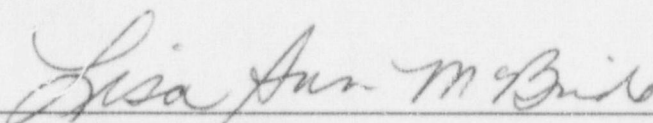
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**STATE OF FLORIDA**  
**COUNTY OF CITRUS**

John J. Holden states that he is the Director, Site Nuclear Operations for Florida Power Corporation; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission the information attached hereto; and that all such statements made and matters set forth therein are true and correct to the best of his knowledge, information, and belief.

  
\_\_\_\_\_  
John J. Holden  
Director  
Site Nuclear Operations

Sworn to and subscribed before me this 6<sup>th</sup> day of October 1998, by  
John J. Holden.

  
\_\_\_\_\_  
Signature of Notary Public  
State of Florida



LISA ANN MCBRIDE  
Notary Public, State of Florida  
My Comm. Exp. Oct. 25, 1999  
Comm. No. CC 505458

LISA ANN MCBRIDE  
(Print, type, or stamp Commissioned  
Name of Notary Public)

Personally \_\_\_\_\_ Produced \_\_\_\_\_  
Known X -OR- Identification \_\_\_\_\_

**FLORIDA POWER CORPORATION  
CRYSTAL RIVER UNIT 3  
DOCKET NO. 50-302/LICENSE NO. DPR-72**

**ATTACHMENT  
to 3F1198-02**

**Response to Generic Letter 98-04:  
Potential for Degradation of the Emergency Core Cooling System  
and the Containment Spray System After a Loss-of-Coolant Accident  
Because of Construction and Protective Coating Deficiencies  
and Foreign Material in Containment**

Response to Generic Letter 98-04

**NRC INFORMATION REQUEST:**

- (1) *A summary description of the plant-specific program or programs implemented to ensure that Service Level 1 protective coatings used inside the containment are procured, applied, and maintained in compliance with applicable regulatory requirements and the plant-specific licensing basis for the facility. Include a discussion of how the plant-specific program meets the applicable criteria of 10 CFR Part 50, Appendix B, as well as information regarding any applicable standards, plant-specific procedures, or other guidance used for: (a) controlling the procurement of coatings and paints used at the facility, (b) the qualification testing of protective coatings, and (c) surface preparation, application, surveillance, and maintenance activities for protective coatings. Maintenance activities involve reworking degraded coatings, removing degraded coatings to sound coatings, correctly preparing the surfaces, applying new coatings, and verifying the quality of the coatings.*

**FPC RESPONSE:**

Florida Power Corporation (FPC) has implemented controls for the procurement, application, and maintenance of Service Level 1 protective coatings used inside the containment in a manner that is consistent with the licensing basis and regulatory requirements applicable to Crystal River Unit 3 (CR-3). The requirements of 10 CFR Part 50 Appendix B are implemented through specification of appropriate technical and quality requirements for the Service Level 1 coatings program that includes ongoing maintenance activities.

For CR-3, Service Level 1<sup>1</sup> coatings are subject to the requirements of the Final Safety Analysis Report (FSAR) description in sections 1.3.2.11, 5.2.2.5 and Tables 1-3 and 5-7, and ANSI N 101.4-1972, as clarified in FSAR Table 1-3, provided as Appendix A to this submittal. The programmatic/procedure controls that implement these requirements are described later in this submittal. Adequate assurance that the applicable requirements for the procurement, application, inspection, and maintenance are implemented is provided by procedures and programmatic controls, approved under the Florida Power Corporation Quality Assurance Program. As a member of the Nuclear Utility Coatings Council, a Florida Power Corporation representative was involved in the development of EPRI TR-109937, "Guideline on Nuclear Safety-Related Coatings" (Reference 8).

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<sup>1</sup> Our response applies to Service Level 1 coatings used in primary containment that are procured, applied and maintained by Florida Power Corporation or their contractor

- (a) Procurement of Service Level 1 coatings used for new applications or repair/replacement activities are procured from vendors with a quality assurance program meeting the applicable requirements of 10 CFR Part 50 Appendix B. FPC, in the Nuclear Procurement and Storage Manual, specifies the applicable technical and quality requirements that the vendor is required to meet. Acceptance activities are also performed in accordance with the Nuclear Procurement and Storage Manual, which is consistent with ANSI N 45.2 and ANSI N 45.2.2-1972 requirements for receipt inspection and source surveillance. This specification of required technical and quality requirements combined with appropriate acceptance activities provides adequate assurance that the coatings received meet the requirements of the procurement documents.
- (b) In 1985, FPC initiated an extensive review of its Reactor Building coating program. This was initiated due to observed concrete failures and investigations in conjunction with Unresolved Safety Issue A-43, "Potential for Loss of Post-LOCA Recirculation Capability Due to Insulation Debris Blockage" (Generic Letter 85-22). This review resulted in the formation of a Protective Coatings Task Force, which initiated many actions over the next several years to upgrade the Reactor Building coating procedures. It also coordinated the investigation of the potential for coating debris interference with the containment sump and the testing of the installed coatings for Design Basis Accident (DBA) conditions.

Qualification testing to DBA conditions of the coatings used inside containment at CR-3 was conducted in 1990 in accordance with the requirements of ASTM D 3911-80 "Evaluating Coatings Used in Light Water Nuclear Power Plants at Simulated Loss of Coolant Accident (LOCA) Conditions," ASTM Standard D 174 "Method of Evaluating Degree of Blistering of Paint," and ASTM D 4082-83 "Effects of Radiation on Coatings Used in Light Water Nuclear Power Plants." The results of this testing were incorporated into FPC's "Application Of Protective Coatings In The Reactor Building" maintenance procedure, MP-139A. This action ensures only qualified coatings are used in required areas.

- (c) The "Requirement Outline for Painting and Protective Coatings," RO-3147, was developed by Gilbert Associates, Inc. for the original construction of Crystal River Unit No. 3 on May 12, 1971. RO-3147 describes the surface preparation, materials, and application of paints for the entire plant including the Reactor Building. During the plant construction, RO-3147 underwent 13 addenda (Addendum A through M) with Addendum M issued on March 20, 1974. The current revision, Revision 4, was issued on December 2, 1993.

"Application Of Protective Coatings In The Reactor Building," MP-139A, a specific procedure for application of coatings to equipment and materials in the Reactor Building, was issued on February 28, 1985. The current revision, Revision 15, was issued on July 31, 1997.

Under the direction of MP-139A, the surface preparation, application and inspection during installation of Service Level 1 coatings used for new applications or repair/replacement activities inside containment is ensured to meet the applicable portions of the standards and regulatory commitments referenced above. Documentation of completion of these activities is performed consistent with the applicable requirements.

As part of Maintenance Rule Baseline Inspection, Preventative Maintenance Procedure, PM-156, "Visual Inspection of Plant Structures," was completed on the Reactor Building in 1997. This procedure included inspections of the coatings on structures in the Reactor Building, including the liner plate. These inspections took into account the degradation of coatings by location relative to the Reactor Building Sump in the near and far field. Refer to Appendix A, Clarification 1, for definitions of near and far field. As localized areas of degraded coatings were identified they were evaluated, prioritized, and scheduled for repair or replacement, as necessary.

In addition, FPC has historically conducted periodic condition assessments of Service Level 1 coatings inside containment. As stated above, the localized areas of degraded coatings were evaluated, prioritized, and scheduled for repair or replacement, as necessary.

The inspections and periodic condition assessments, along with the resulting repair/replacement activities, assured that the amount of Service Level 1 coatings that may be susceptible to detachment from the substrate during a loss of coolant accident (LOCA) event was minimized.

***NRC INFORMATION REQUEST:***

***(2) Information demonstrating compliance with item (i) or item (ii):***

***(i) For plants with licensing-basis requirements for tracking the amount of unqualified coatings inside the containment and for assessing the impact of potential coating debris on the operation of safety-related SSCs during a postulated DB LOCA, the following information shall be provided to demonstrate compliance:***

***(a) The date and findings of the last assessment of coatings, and the planned date of the next assessment of coatings.***

***(b) The limit for the amount of unqualified protective coatings allowed in the containment and how this limit is determined. Discuss any conservatism in the method used to determine this limit.***

- (c) *If a commercial-grade dedication program is being used at your facility for dedicating commercial-grade coatings for Service Level I applications inside the containment, discuss how the program adequately qualifies such a coating for Service Level I service. Identify which standards or other guidance are currently being used to dedicate containment coatings at your facility; or,*
- (ii) *For plants without the above licensing-basis requirements, information shall be provided to demonstrate compliance with the requirements of 10 CFR 50.46(b)(5), "Long-term cooling" and the functional capability of the safety-related CSS as set forth in your licensing basis. If a licensee can demonstrate this compliance without quantifying the amount of unqualified coatings, this is acceptable.*

**FPC RESPONSE:**

CR-3 licensing basis does not require tracking the amount of unqualified coatings inside containment; therefore, the following response is to section (ii).

The following description and referenced materials describe the licensing basis for CR-3 relative to conformance with 10 CFR 50.46(b)(5), "Long-term cooling," specifically with regard to CR-3's ability to provide extended decay heat removal including related assumptions for debris that could block containment emergency sump screens:

- FSAR Section 14.2.2.5, Loss of Coolant Accident, explains the ability to meet all emergency core cooling system (ECCS) design criteria as defined in 10 CFR 50.46 for both Large Break and Small Break LOCA scenarios.
- FSAR Section 6.2, Reactor Building Spray (6.2.2.1, System Description), explains capabilities of the Reactor Building Spray systems as follows:

To prevent the clogging of the spray nozzle orifices, a sump screen assembly is positioned so as to strain the recirculation flow. The sump screen assembly consists of five screens supported by built-up stainless steel posts and guide angles which are welded to the sump liner plate. The screens are of woven wire construction having  $\frac{1}{4}$  inch by  $\frac{1}{4}$  inch clear openings which are compatible with the  $\frac{3}{8}$  inch spray nozzle orifices. In the unlikely event of individual screen failures, the effectiveness of the entire sump screen assembly will not be lost because of the design of five separate screens, each being restrained in place independently of one another (See FSAR Figure 6-6).

In the event of a LOCA, water will be pumped into the Reactor Building (RB) via the High Pressure Injection (HPI), Low Pressure Injection (LPI) and Building Spray (BS) systems. The only means of recirculating the water accumulating in the RB sump is via the two redundant 14 inch diameter suction pipes connecting to the BS and LPI systems. All water

must flow through the sump screen assembly prior to being recirculated. The sole function of the sump screen assembly is to prevent small debris in the recirculating water from entering the associated system(s).

A 1-1/2 inch grating cover above the sump inlet is designed to prevent large debris from entering the sump area. Dislodged debris and paint chips present in the recirculation water, smaller than 1-1/2 inch size, will flow into the RB sump preceding the sump screen assembly. High density particles will have a tendency to settle out and be retained by the 3 foot weir preceding the RB sump screen assembly. The velocity of flow through the RB sump screen is relatively low and in a downward direction, therefore permitting suspended debris to settle out and collect in the debris hoppers. Particles smaller than 1/4 inch in size, which are not retained by the weir or sump screen assembly, will flow through the BS, LPI and HPI systems with no additional restrictions, thus returning to the RB proper.

- FSAR Section 6.2.2.1.1., Building Spray Nozzles, explains capabilities of the Reactor Building spray nozzles as follows:

SPRACO-1713A spray nozzles are used in the RB spray headers. The RB spray nozzles are ramp bottom swirl chamber type nozzles of one piece construction, have a 3/8 inch orifice, and deliver a hollow cone spray pattern. Since the spray nozzle size (3/8 inch) is larger than the sump screen (1/4 inch), there is assurance that the nozzles will not become blocked.

- Consistent with the requirements of General Design Criteria (GDC), Appendix A, Regulatory Guide 1.82, Revision 0, "Sumps for Emergency Core Cooling and Containment Spray Systems," CR-3 has assumed that the systems that draw from the sumps for emergency core cooling and containment spray systems may experience sump blockage of approximately 50% of the effective sump area from debris generated as a result of a LOCA. At the time CR-3 was licensed, no distinction was drawn between the various potential sources for post-LOCA debris; these systems were intended to function, even with debris partially obstructing the sumps, from whatever source derived. The analyses discussed in FPC's response to GL 97-04 (Reference 7) demonstrate, however, that, even with this blockage, the emergency core cooling and containment spray systems will continue to provide sufficient cooling flow as to fulfill the long-term cooling functions required to conform with 10 CFR 50.46(b)(5).
- The NRC accepted these system analyses as meeting the requirements of 10 CFR 50.46(b)(5), in the NRC issued Safety Evaluation Report (SER) to CR-3 on July 5, 1974 (Reference 1). Section 6.2.2 of the SER, "Containment Heat Removal Systems," states that, "The reactor building sump assembly is designed to prevent debris from entering the spray system that could clog the spray nozzles." The SER stated that, "We have reviewed the containment heat removal systems for conformance to the GDC Nos. 38, 39, and 40,



and Regulatory Guide 1.1, "Net Positive Suction Head for Emergency Core Cooling and Heat Removal System Pumps" dated November 2, 1970. We conclude that the systems meet the requirements of these criteria and are acceptable."

It should be noted that this SER acknowledged that CR-3 was not designed and constructed to the General Design Criteria published in 1971 (10 CFR 50 Appendix A), stating that, "This facility was designed and constructed to meet the AEC's GDC, as originally proposed in July 1967. The Commission published the revised GDC in 1971 just before the FSAR was filed. We conducted our technical review against the present version of the GDC and we conclude that the plant design acceptably conforms to the current criteria."

- Additionally, on July 17, 1998, the NRC accepted FPC response to Generic Letter 97-04, "Assurance of Sufficient Net Positive Suction Head for Emergency Core Cooling and Containment Heat Removal Pumps," and closed the Generic Letter (Reference 2).
- Calculation S89-0049, "Evaluation Analysis of Potential Coating Failure," was issued on April 26, 1989, and evaluated the potential consequences of debris resulting from a postulated failure of degraded and/or unqualified coatings (paint) due to a LOCA inside the CR-3 Reactor Building on the performance of the containment emergency sump. Specifically, the velocity required to transport debris was calculated along with the velocity profiles in areas of the Reactor Building. This calculation defined the "near field" and "far field" zones of the Reactor Building where debris could possibly be transported to and affect the containment sump.

Calculation S89-0050, "Allowable Quantities of Coating Failure," was issued on May 8, 1989. It documents the acceptable quantities of failures, which will not jeopardize the operation of the containment emergency sump. In addition, it compares this quantity against the total amount of unqualified coatings identified in containment. These quantities of unqualified coatings are tracked in an unqualified coatings log and are assured to be less than the maximum acceptable quantity.

The licensing basis for CR-3, as accepted by the NRC's SER (Reference 1), provides both the regulatory and safety basis for safety system performance. Protective coatings are specifically mentioned in several places in the current licensing basis including several FSAR sections. Coatings are not treated separately in the licensing basis for CR-3 because the sump screen blockage assumption does not distinguish among the sources of the LOCA generated debris. As the NRC noted in Generic Letter 85-22, "Potential for Loss of Post-LOCA Recirculation Capability due to Insulation Debris Blockage," a change in regulatory guidance for the basis for sump screen blockage would constitute a generic backfit. It should be noted, however, that the issue of fibrous debris was further discussed in FPC to NRC letter dated June 7, 1993 (Reference 3), which provided FPC's response to Bulletin 93-02 (Reference 4). In that response, FPC indicated that two ventilation systems in the Reactor Building contained

fiberglass media in the filters. In that same response, FPC committed to remove the filters in the fall of 1993. On September 9, 1993 (Reference 5), FPC informed the NRC of the filter removal, and in a letter dated, May 3, 1994 (Reference 6), the NRC closed Bulletin 93-02 for CR-3. Moreover, the analyses for coating failure during a LOCA, and testing programs for coating failure conducted to date, do not contradict FPC's determination that emergency core cooling system flow following a LOCA will be adequate to meet our design and licensing requirements.

***NRC INFORMATION REQUEST:***

*The following information shall be provided:*

- (a) If commercial-grade coatings are being used at your facility for Service Level 1 applications, and such coatings are not dedicated or controlled under your Appendix B Quality Assurance Program, provide the regulatory and safety basis for not controlling these coatings in accordance with such a program. Additionally, explain why the facility's licensing basis does not require such a program.*

**FPC RESPONSE:**

Florida Power Corporation does not currently employ commercial grade dedication for Service Level 1 coatings used inside containment at CR-3.

**REFERENCES:**

1. NRC to FPC letter, 3N0774-01, dated July 5, 1974, "Safety Evaluation by the Directorate of Licensing"
2. NRC to FPC letter, 3N0798-11, dated July 17, 1998, "Completion of Licensing Action for Generic Letter 97-04, Assurance of Sufficient Net Positive Suction Head for Emergency Core Cooling and Containment Heat Removal Pumps, dated October 7, 1997; Crystal River Unit 3 (TAC No. M99979)"
3. FPC to NRC letter, 3F0693-01, dated June 7, 1993, "Response to NRC Bulletin 93-02"
4. NRC to FPC letter, 3N0593-03, dated May 11, 1993, "NRC Bulletin 93-02: Debris Plugging of Emergency Core Cooling Suction Strainers"
5. FPC to NRC letter, 3F0993-06, dated September 9, 1993, "Supplemental Response to Bulletin 93-02"

6. NRC to FPC letter, 3N0594-04, dated May 3, 1994, "Response to NRC Bulletin (NRCB) No. 93-02, MPA-X302 Debris Plugging of Emergency Core Cooling Suction Strainers Crystal River Nuclear Generating Plant Unit 3 - (TAC No. M86553)"
7. FPC to NRC letter, 3F0198-12, dated January 5, 1998, "Response to Generic Letter 97-04, Assurance of Sufficient Net Positive Suction Head for Emergency Core Cooling and Containment Heat Removal Pumps"
8. EPRI TR-109937, "Guideline on Nuclear Safety-Related Coatings," dated April 1998

**FSA TABLE 1-3 Florida Power Corporation Quality Program Commitments**

**NRC REGULATORY GUIDE 1.54 - "QUALITY ASSURANCE REQUIREMENTS FOR PROTECTIVE COATINGS APPLIED TO WATER-COOLED NUCLEAR POWER PLANTS" (REV. 0, 6/73) - ENDORSES ANSI N101.4-1972.**

The Quality Program meets the general intent of this guide. The program concerning protective coatings is further delineated in the project specification for Painting & Protective Coatings, RO-3147, and all appropriate plant procedures.

ANSI N101.4-1972 was written to address the protective coating requirements for the construction phase of nuclear power plants. It does not adequately address the more frequently required small amount of painting that is necessary during the operational phase of a plant's life.

RO-3147 meets the requirements of ANSI N101.4-1972 with the following clarifications:

1. REQUIREMENT: Section 1.2.2.1 - "Class I Service Level applies to those systems and components of nuclear facilities. . ."

CLARIFICATION: FPC considers "Class I Service Level" to be those systems and components which may be exposed to a LOCA atmosphere where failure of the protective coating could have a detrimental effect on plant safety. This applies to items in, or to be installed inside portions of the primary containment building. The portions of the primary containment where Class I service is necessary were identified in the "Evaluation Analysis of Potential Coatings Failures" (FSAR Section 1.11, Reference 2). This evaluation established "near field" and "far field" locations within the containment where failure of the coatings could result in reactor building sump blockage and possibly affect sump operability post LOCA. The "near field" location is an area where failed protective coatings could fall directly into the sump. "Far field" locations are areas where fluid velocities during LOCA recovery are adequate to transport failed protective coatings to the sump and possibly result in sump blockage. RO-3147, Section 3:02 details the requirements for these items and is consistent with ANSI N101.2-1972.

2. REQUIREMENT: Section 2.3.3.4 - "The coating manufacturer shall furnish application procedures . . . specification. This shall include the

**FSAR TABLE 1-3 Florida Power Corporation Quality Program Commitments**

NRC REGULATORY GUIDE 1.54 - "QUALITY ASSURANCE REQUIREMENTS FOR PROTECTIVE COATINGS APPLIED TO WATER-COOLED NUCLEAR POWER PLANTS" (REV. 0, 6/73) - ENDORSES ANSI N101.4-1972.

maximum and minimum ambient conditions at which application can be properly made."

CLARIFICATION: The paint manufacturer for CR-3 has submitted technical bulletins which contain recommendations regarding application of this manufacturer's coatings. These recommendations have been factored into the maintenance procedure for application of protective coatings inside the reactor building and will be attached to the procedure for reference. If a turnkey painting project is required, RO-3147, Section 5:03.6 requires the contractor to submit for FPC approval all fabrication special processes, inspection, and test procedures for work to be performed onsite. RO-3147, Section 3:02.2 also outlines precautions to be taken, such as not painting metal or concrete surfaces when the surface temperature is below 50°F; and primer and finish coatings shall not be applied when the surface temperature of the item to be coated is within 5°F of wet bulb temperature.

3. REQUIREMENT: Section 2.5.2 - "Before the start of the coating work in the shop/or in the field, there shall be a shop meeting. . ."

CLARIFICATION: Approved plant procedures at Crystal River Unit 3 require pre-planning for all work requests, and personnel briefings are conducted before the start of all work. This pre-planning activities and briefings cover such items as personnel safety, radiological exposure, and work practices for the job involved. This approach to a task meets the intent of this section's requirement for a shop meeting.

4. REQUIREMENT: Section 3.4 - "Each container shall be labeled with . . . the date of manufacturer."

CLARIFICATION: RO-3147, Section 3:02.1 requires the paint manufacturer to label the container with the batch number. Additional information for

**FSAR TABLE 1-3 Florida Power Corporation Quality Program Commitments**

NRC REGULATORY GUIDE 1.54 - "QUALITY ASSURANCE REQUIREMENTS FOR PROTECTIVE COATINGS APPLIED TO WATER-COOLED NUCLEAR POWER PLANTS" (REV. 0, 6/73) - ENDORSES ANSI N101.4-1972.

the batch such as the date of manufacture is available onsite in the certification provided by the manufacturer.

5. REQUIREMENT: Section 3.6.1 - "The owner may require in the project specification that a DBA exposure test . . . be performed on specimens of each coating. . . ."

CLARIFICATION: Test data for the coatings and surface preparations used during construction are retained by the coating manufacturer and may be obtained at any time. DBA test data for coatings and surface preparations used for maintenance coating work are maintained by FPC. The project specification states the coating systems that have been successfully DBA tested to requirements that are equal to or greater than CR3 requirements may be used at CR-3.

6. REQUIREMENT: Section 4.2.3 - "The project specification shall include inspection methods to . . . temperature of substrates."

CLARIFICATION: RO-3147, Section 3:02.6 requires that inspections be performed by qualified personnel throughout the painting program. Inspection methods are provided in the approved plant procedures rather than the project specification.

7. REQUIREMENT: Section 4.4 - Removal of Contaminants. To avoid contamination of substrates, the project specification shall . . . curing compounds."

CLARIFICATION: RO-3147, Section 3:02.3 addresses preparation of surfaces to be painted including removal of weld splatter, degreasing, use of solvents for cleaning, removal of grit and dirt, etc.

**FSAR TABLE 1-3 Florida Power Corporation Quality Program Commitments**

NRC REGULATORY GUIDE 1.54 - "QUALITY ASSURANCE REQUIREMENTS FOR PROTECTIVE COATINGS APPLIED TO WATER-COOLED NUCLEAR POWER PLANTS" (REV. 0, 6/73) - ENDORSES ANSI N101.4-1972.

8. REQUIREMENT: Section 4.5 - "The coating applicator shall report daily on surface preparation conditions encountered during each shift . . ."

CLARIFICATION: The precautions and surface preparations stated in RO-3147, Sections 3:02.2 and 3:02.3, respectively, provide assurance that adequate surface preparation is performed prior to applying protective coatings. In addition, RO-3147, Section 3:02.6 provides the requirements for quality control documentation of surface preparation. This documentation requirement meets the intent of ANSI N101.4-1972, Section 4.5.

9. REQUIREMENT: Section 5.2.2 - "These application procedures shall be approved by the coating applicator, the coating manufacturer, and the owner or his representative."

CLARIFICATION: Manufacturer recommendations presented in the form of technical bulletins are reviewed by FPC for applicability and inclusion into specific plant procedures used by the coating applicator. Application procedures other than those recommended by the coating manufacturer may be used if they are supported by DBA test data applicable to CR-3. When painting is to be done by an outside contractor, he may use FPC generated painting procedures or his procedures which must be approved by FPC in accordance with RO-3147, Section 3:05.

10. REQUIREMENT: Section 5.4.3 - "The coating applicator shall report daily on the application work for each area of work . . .".

CLARIFICATION: FPC meets the intent of the controls described in Section 5.4.3 through requirements detailed in RO-3147, Section 3:02.6 for documentation of activities performed and inspection of those activities. The paint application procedure requires quality control inspection of painting at specific points in the procedure. This approach meets the intent of the daily reporting requirements.

**FSAR TABLE 1-3 Florida Power Corporation Quality Program Commitments**

NRC REGULATORY GUIDE 1.54 - "QUALITY ASSURANCE REQUIREMENTS FOR PROTECTIVE COATINGS APPLIED TO WATER-COOLED NUCLEAR POWER PLANTS" (REV. 0, 6/73) - ENDORSES ANSI N101.4-1972.

11. REQUIREMENT: Section 6.2.3 - "Inspection agencies shall provide the services of one or more qualified inspectors. . .".

CLARIFICATION: FPC QC Inspectors or approved contractor personnel who are trained to perform coatings inspection in accordance with the FPC approved Quality Program and are certified in accordance with ANSI N45.2.6-1978, as addressed in FSAR commitments, will perform the required inspections at CR-3. Because of the relatively small amount of protective coatings application performed at CR-3, FPC's QC Inspectors may also perform other types of inspections. However, when protective coating application is taking place, an appropriately certified QC Inspector(s) will be available to perform the prescribed inspections as specified by program requirements.

12. REQUIREMENT: Section 6.2.4 - "Inspection shall conform to all the applicable requirements of Section 7, Inspection, of ANSI N5.9. . .".

CLARIFICATION: FSAR Section 1.7.1.10 provides FPC's overall requirements for inspections. RO-3147, Section 3:02.6 further details specific inspection requirements.

13. REQUIREMENT: Section 6.3.2 - "The project specification shall state whether this training is required."

CLARIFICATION: All inspections are performed by Quality Control inspectors who are qualified to ANSI N45.2.6-1978. Inspectors are also trained on coating requirements, procedures, and inspection techniques. Further inspection program requirements are described in FSAR Section 1.7.1.10.



**FSAR TABLE 1-3 Florida Power Corporation Quality Program Commitments**

NRC REGULATORY GUIDE 1.54 - "QUALITY ASSURANCE REQUIREMENTS FOR PROTECTIVE COATINGS APPLIED TO WATER-COOLED NUCLEAR POWER PLANTS" (REV. 0, 6/73) - ENDORSES ANSI N101.4-1972.

14. REQUIREMENT: Section 6.4 - "Scope of Inspections . . . all aspects of the coating work."

CLARIFICATION: As stated in the clarification for Section 4.2.3, inspection methods are described in the approved plant procedures and occur at specified points in the painting program. RO-3147, Section 3:02.1 subitem 5 requires the services of the paint manufacturer shall be made available for field consultation. His advice and recommendations are subject to FPC approval before use.

15. REQUIREMENT: Section 6.5 - "The maximum thickness may also be critical and ... the coating manufacturer."

CLARIFICATION: RO-3147, Section 3:02.6 limits the maximum thickness of paint sags and runs to 18 mil dry film thickness (DFT) at its thickest point. This value has been agreed to by FPC and its paint manufacturer. The paint schedule, RO-3147, Section 3:04.1 provides a range (min to max) of dry film thickness (DFT) for coatings used inside containment.

16. REQUIREMENT: Section 6.6 - "Coating inspection equipment . . .".

CLARIFICATION: FPC utilizes calibrated and approved equipment and gauge indicators. No wet film thickness (WFT) equipment is used since WFT is only a guide during application. FPC considers the measurement of dry film thickness sufficient to meet the intent of Section 6.6.7 of ANSI N101.4-1972. Paint industry practice is to specify dry film thickness for protective coatings. RO-3147, Sections 3:02.4, 3:04, and 3:02.6 discuss the dry film thickness requirements.

17. REQUIREMENT: Section 6.8.1 - "A written daily coating inspection record shall be submitted by the coating inspection agency."

**FSAR TABLE 1-3 Florida Power Corporation Quality Program Commitments**

NRC REGULATORY GUIDE 1.54 - "QUALITY ASSURANCE REQUIREMENTS FOR PROTECTIVE COATINGS APPLIED TO WATER-COOLED NUCLEAR POWER PLANTS" (REV. 0, 6/73) - ENDORSES ANSI N101.4-1972.

CLARIFICATION: Approved plant procedures require quality assurance documentation to meet record requirements for specific inspections. Further, detailed inspections are conducted to ensure requirements in accordance with FSAR Section 1.7.1.10.

18. REQUIREMENT: Section 7 - "Quality Assurance Documentation . . .".

CLARIFICATION: RO-3147, Sections 3:02.6 and 5:03 address Quality Assurance documentation deemed necessary for painting at CR-3. These are in accordance with ANSI N45.2.9-1974. FPC utilizes forms which are developed to meet the painting program.

19. REQUIREMENT: Section 4.2.1 - "The surface preparation of substrates or previously primed...of the project specification."

CLARIFICATION: RO-3147 requires that surfaces be prepared in accordance with the manufacturers recommendation but also allows surface preparation other than those recommended by the manufacturer if DBA test data is available to support the use of the alternate surface preparation.

The painting program delineated in RO-3147 will ensure that all protective coatings used inside the primary containment will be proper coatings, applied by qualified personnel and in accordance with manufacturers' instructions, and will be inspected and have proper documentation. This program will meet the intent of Regulatory Guide 1.54, Revision 0.