

Lewis Sumner
Vice President
Hatch Project Support

Southern Nuclear
Operating Company, Inc.
40 Inverness Parkway
Post Office Box 1295
Birmingham, Alabama 35201
Tel 205.992.7279
Fax 205.992.0341

October 19, 1998

Docket Nos. 50-321
50-366



HL-5687

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Edwin I. Hatch Nuclear Plant
Response to Generic Letter 98-04

Ladies and Gentlemen:

On July 14, 1998, the Nuclear Regulatory Commission (NRC) issued 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." The generic letter addresses the NRC staff's concerns regarding the impact of potential coating debris on the operation of safety related systems, structures, and components during a postulated design basis loss of coolant accident (LOCA). Protective coatings are necessary inside containment to control radioactive contamination and to protect surfaces from erosion and corrosion. The NRC staff is concerned that significant detachment of the coatings from the substrate may make the emergency core cooling systems (ECCS) unable to satisfy the requirement of 10 CFR 50.46(b)(5) to provide long-term cooling and core spray functions following a LOCA. Generic Letter 98-04 requests information under 10 CFR 50.54(f) to evaluate the addressees' programs for ensuring Service Level 1 protective coatings inside containment do not detach from their substrate during a design basis LOCA and interfere with the operation of the ECCS. The NRC intends to use this information to assess whether current regulatory requirements are being correctly implemented and whether these requirements need to be revised.

The enclosure provides the required 120-day response for Plant Hatch Unit 1 and Unit 2.

Mr. H. L. Sumner, Jr. states he is Vice President of Southern Nuclear Operating Company and is authorized to execute this oath on behalf of Southern Nuclear Operating Company, and to the best of his knowledge and belief, the facts set forth in this letter are true.

Respectfully submitted,

H. L. Sumner, Jr.

Sworn to and subscribed before me this 19th day of October 1998.

Notary Public

My Commission Expires: August 3, 1998

9810260138 981019
PDR ADOCK 05000321
P PDR

11
A-80

U.S. Nuclear Regulatory Commission

Page 2

October 19, 1998

AEZ/eb

Enclosure: Response to Generic Letter 98-04

cc: Southern Nuclear Operating Company
Mr. P. H. Wells, Nuclear Plant General Manager
SNC Document Management (R-Type A02.001)

U.S. Nuclear Regulatory Commission, Washington, D.C.
Mr. L. N. Olshan, Project Manager - Hatch

U.S. Nuclear Regulatory Commission, Region II
Mr. L. A. Reyes, Regional Administrator
Mr. J. T. Munday, Senior Resident Inspector – Hatch

Enclosure

Edwin I. Hatch Nuclear Plant
Response to Generic Letter 98-04

NRC REQUESTED INFORMATION

- (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.

SNC RESPONSE

Southern Nuclear Operating Company (SNC) has implemented controls for the procurement, application, and maintenance of Service Level 1¹ protective coatings used inside the containment in a manner consistent with the licensing basis and regulatory requirements applicable to Plant Hatch. The requirements of 10 CFR 50, Appendix B, are implemented through specification of appropriate technical and quality requirements for the Service Level 1 coatings program, which includes ongoing maintenance activities.

Hatch Unit 1 was licensed prior to the issuance of Regulatory Guide 1.54-1973, "Quality Assurance Requirements for Protective Coatings applied to Water-Cooled Nuclear Power Plants." Consequently, the licensing commitments for this unit are not subject to the requirements of Regulatory Guide 1.54-1973 or applicable ANSI standards. For Hatch Unit 2, Service Level 1 coatings are subject to the requirements of Regulatory Guide 1.54-1973; ANSI N101.2-1972, "Protective Coatings (Paints) for Light Water Nuclear Reactor Containment Facilities"; and ANSI N101.4-1972, "Quality Assurance Requirements for Protective Coatings Applied to Nuclear Facilities." Procedures and programmatic controls approved under the SNC Quality Assurance program provide adequate assurance the applicable requirements for the procurement, application, inspection, and maintenance are implemented. SNC evaluated the guidance provided in EPRI TR-109937, "Guidelines on the Elements of Nuclear Safety-Related Coatings," and, as appropriate, certain improvements to existing programs and procedures addressing Service Level 1 coatings were made.

¹SNC's response applies to Service Level 1 coatings inside the primary containment that are procured, applied, and maintained by SNC or their contractor. The response does not address the relatively small amount of coatings applied by vendors on supplied equipment and miscellaneous structural supports.

Compliance with the licensing basis and regulatory requirements applicable to Plant Hatch is provided through the following programs and processes:

- a. Service Level 1 coatings used for new applications or repair/replacement activities are procured from a vendor(s) having a quality assurance program meeting the applicable requirements of 10 CFR 50 Appendix B. SNC procurement documents specify the applicable technical and quality requirements the vendor is required to meet. Acceptance activities are conducted in accordance with procedures consistent with the requirements of ANSI N45.2-1977 and ANSI N18.7-1976 (e.g., receipt inspection and source surveillance). The specification of required technical and quality requirements, combined with appropriate acceptance activities, provides adequate assurance the coatings received meet the requirements of the procurement documents.
- b. The qualification testing of Service Level 1 coatings used for new applications or repair/replacement activities inside the Unit 1 and Unit 2 containment meets the applicable requirements contained in the standards and regulatory commitments for Hatch Unit 2. These coatings, including any substitute coatings, were evaluated to ensure compliance with the applicable Hatch Unit 2 standards and regulatory requirements previously referenced.
- c. Surface preparation, application, and surveillance activities performed during installation of Service Level 1 coatings used for new applications or repair/replacement activities inside the Unit 1 and Unit 2 containment meet the applicable portions of the standards and regulatory commitments referenced under Hatch Unit 2 above. Documentation of completion of these activities is performed consistent with the applicable requirements. Where the requirements of the standards and regulatory commitments did not address or were not applicable to repair/replacement activities, the activities were performed in a manner consistent with the generally accepted practices for coatings repair/replacement. These practices are described in various ASTM standards and industry coating practice guidelines issued subsequent to those to which SNC has a regulatory commitment. Although the NRC has not formally endorsed many of the more recent ASTM standards or industry guidelines, SNC believes they provide useful information that can be appropriately applied to provide assurance that repair/replacement activities on Service Level 1 coatings are effective in maintaining the acceptability of the coatings.

SNC periodically conducts condition assessments of Service Level 1 coatings inside containment, as appropriate. Coating condition assessments are conducted as part of and in accordance with Hatch procedures 42SV-T23-003-OS, "Interior Drywell Surfaces Visual Inspection," and 42SV-SUV-047-OS, "Torus Surface, Relief Valve, Piping and Miscellaneous Support Visual Inspection." As localized areas of degraded coatings are identified, they are evaluated and scheduled for repair or replacement, as necessary. The periodic condition assessments, and the resulting repair/replacement activities, assure the amount of Service Level 1 coatings that may be suspected to detach from the substrate during a loss of coolant accident (LOCA) event is minimized.

NRC REQUESTED INFORMATION

- (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 design basis 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 1 applications inside the containment, discuss how the program adequately qualifies such a coating for Service Level 1 service. Identify which standards or other guidance are currently being used to dedicate containment coatings at your facility.
 - ii. For plants without the above licensing-basis requirements, information shall be provided to demonstrate compliance with the requirements of 10 CFR 50.46b(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.
 - (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.

SNC RESPONSE

Items i(a) and i(b)

Items i(a) and i(b) are not applicable to Plant Hatch. Plant Hatch does not have any current licensing-basis requirements for tracking the amount of unqualified coatings inside the containment and assessing the impact of potential coating debris on the operation of safety-related SSCs during a postulated design basis LOCA.

Item i(c)

SNC does not currently employ commercial-grade dedication for Service Level 1 coatings used inside the containments at Plant Hatch.

Item (ii)

In response to NRC Bulletin 96-03, "Potential Plugging of Emergency Core Cooling Suction Strainers by Debris in Boiling Water Reactors," large passive replacement emergency core cooling system (ECCS) strainers were recently installed at Plant Hatch. Consequently the following discussion addresses the anticipated licensing basis pending resolution of NRC Bulletin 96-03.

The design input to the ECCS strainer calculations for the amount of unqualified coatings, qualified coatings in steam/water jet zone of influence, and degraded qualified coatings in the containment (as identified from periodic visual inspections) is documented in the new ECCS strainer hydraulic calculations. Consequently, the amount of these coating materials is being tracked at Plant Hatch (in addition to the quantity of fibrous, particulate, and other miscellaneous debris), to ensure the analyzed functional capability of the ECCS is not compromised.

The new ECCS pump suction strainers are designed to perform satisfactorily in the presence of 100% of the containment coatings which are installed in the LOCA pipe break steam/water jet zone of influence. This amount of coating debris is determined in accordance with the methodology documented in the BWR Owners' Group Utility Resolution Guidance (URG) document (NEDO-32686), section 3.2.2.2.1.1.

An additional amount of coating debris is added to the debris from the zone of influence. This amount accounts for potential debris that may result from coatings that are unqualified and/or degraded. Results of BWR Owners' Group LOCA testing of coupons representing unqualified coating systems provide compelling evidence that failure of typical unqualified coating systems, which pass a visual inspection, is highly unlikely in the first 30 minutes of the LOCA. Only for the first 2 to 15 minutes of the LOCA event, depending upon the pipe break size, are suppression pool turbulence levels adequate to maintain coating debris in suspension in the pool where it would be available for accumulation on the ECCS strainers. Since the coating debris will quickly settle to the bottom of the suppression pool after the turbulence subsides, the coating debris (if eventually released some time after the first 30 minutes of the LOCA) will not be available to accumulate on the strainers. Since the sizing of the replacement ECCS strainers for Plant Hatch occurred prior to the BWR Owners' Group LOCA testing, no credit was taken for the delayed release of coating debris; therefore, these designs are conservative with respect to the limit on this coating debris source.

SNC is participating in the BWR Owners' Group Containment Coatings Committee, which has several activities in progress. These activities are expected to provide an additional increase in the quantity of containment coating debris that can be accommodated on the strainers without challenging their functional capability.

Enclosure
Response to Generic Letter 98-04

Item ii(a)

SNC does not currently employ commercial-grade dedication for Service Level 1 coatings used inside the containments at Plant Hatch.