

**North
Atlantic**

North Atlantic Energy Service Corporation
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The Northeast Utilities System

November 6, 1998

Docket No. 50-443

NYN-98125

AR#98013661

United States Nuclear Regulatory Commission
Attn.: Document Control Desk
Washington, DC 20555-0001

Seabrook Station
Response to 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"

The purpose of this letter is to respond to the Nuclear Regulatory Commission's request for information regarding Generic Letter 98-04.

On July 14, 1998, the Nuclear Regulatory Commission issued Generic Letter 98-04 regarding issues which have generic implications regarding the impact of potential coating debris on the operation of safety related systems, structures, and components (SSC) during a postulated design basis Loss of Coolant Accident (LOCA). Protective coatings have been applied inside of the Seabrook Station containment to control radioactive contamination and to protect surfaces from erosion and corrosion. As identified in Generic Letter 98-04, detachment of the coatings from the substrate may make the Emergency Core Cooling System (ECCS) unable to satisfy the requirement of 10 CFR 50.46(b)(5) to provide long-term cooling and may make the safety-related Containment Building Spray (CBS) System unable to satisfy the plant specific licensing basis of controlling containment pressure and radioactivity releases following a LOCA. The generic letter requested information under 10 CFR 50.54(f) to evaluate the Seabrook Station Unit 1 program for ensuring that 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 and the CBS.

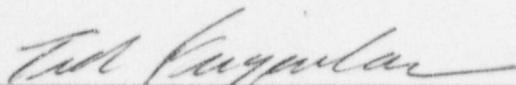
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The North Atlantic responses to the information requested in Generic Letter 98-04 are provided in the enclosure to this letter.

Should you have any questions regarding this response, please contact Mr. Terry L. Harpster, Director of Licensing Services, at (603) 773-7765.

Very truly yours,

NORTH ATLANTIC ENERGY SERVICE CORP.



Ted C. Feigenbaum
Executive Vice President and
Chief Nuclear Officer

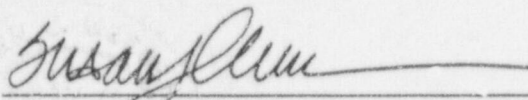
cc: H. J. Miller, NRC Region I Administrator
J. T. Harrison, NRC Project Manager, Project Directorate 1-3
R. K. Lorson, NRC Senior Resident Inspector

STATE OF NEW HAMPSHIRE

Rockingham, ss.

DATE 11/6/98

Then personally appeared before me, the above-named Ted C. Feigenbaum, being duly sworn, did state that he is Executive Vice President and Chief Nuclear Officer of the North Atlantic Energy Service Corporation that he is duly authorized to execute and file the foregoing information in the name and on the behalf of North Atlantic Energy Service Corporation and that the statements therein are true to the best of his knowledge and belief.



Susan J. Messer, Notary Public

My Commission Expires: December 22, 1998

ENCLOSURE TO NYN-98125

Generic Letter 98-04 Requested Information

REQUIRED INFORMATION:

- (1) A summary description of the plant-specific program or programs implemented to ensure that Service Level I 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.

RESPONSE:

North Atlantic has implemented controls for the procurement, application, and maintenance of Service Level I protective coatings used inside the containment in a manner that is consistent with the licensing basis and regulatory requirements applicable to Seabrook Station. The requirements of 10 CFR Part 50 Appendix B are implemented through the specification of the appropriate technical and quality requirements for the Service Level I coatings program which includes ongoing maintenance activities.

Service Level 1 coatings used on steel and on concrete surfaces inside of the containment at Seabrook Station Unit 1 that might be exposed to containment spray have been tested and accepted in accordance with the requirements of American National Standard (ANSI) N101.2 - 1972 "Protective Coatings (Paints) for Light Water Nuclear Reactor Containment Facilities" with an exception taken in the criteria used. The acceptance criteria for power tool cleaning methods, intended for limited use in the containment, is adherence of the coating (no solid debris generated) rather than ANSI blister size and frequency.

The protective coatings have been applied in accordance with the requirements of Regulatory Guide (RG) 1.54 "Quality Assurance Requirements for Protective Coatings Applied to Water-Cooled Nuclear Power Plants." The coatings were applied in accordance with the manufacturer's printed instructions over properly prepared surfaces. 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 Seabrook Station Quality Assurance program.

- (a) Procurement of Service Level 1 coatings used for new applications or repair/replacement activities are procured from a vendor with a quality assurance program meeting the applicable requirements of 10 CFR Part 50 Appendix B. The applicable technical and quality requirements that the vendor is required to meet are specified by North Atlantic in the appropriate procurement documents. Acceptance activities are conducted in accordance with procedures that are consistent with ANSI N 45.2 "Quality Assurance Requirements for Nuclear Power Plants" requirements (e.g., receipt inspection, source surveillance, etc.). 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) The qualification testing of Service Level I coatings used for new applications or repair/replacement activities inside containment meets the requirements of ANSI N101.2 - 1972 "Protective Coatings (Paints) for Light Water Nuclear Reactor Containment Facilities"
- (c) The surface preparation, application and surveillance during installation of Service Level I coatings used for new applications or repair/replacement activities inside containment meet the applicable portions of the standards and regulatory commitments referenced above. Documentation of completion of these activities is performed in accordance with station procedure MS0517.23 "Surface Preparation and Coating of Level I Surfaces" which is consistent with the applicable requirements.

Additionally, North Atlantic periodically conducts condition assessments of Service Level I coatings inside containment. Coating condition assessments are conducted as part of the 10CFR50.65 Maintenance Rule inspections of the reactor containment structure. As localized areas of degraded coatings are identified, those areas are evaluated and scheduled for repair or replacement, as necessary. The periodic condition assessments, and the resulting repair/replacement activities, assure that the amount of Service Level 1 coatings which may be susceptible to detachment from the substrate during a LOCA event is minimized.

REQUIRED 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 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,

RESPONSE:

Seabrook Station does not have current licensing-basis requirements for tracking the amount of unqualified coatings inside the containment.

REQUIRED INFORMATION:

- (ii) For plants without the above licensing-basis requirements, information shall be provided to demonstrate compliance with the requirements of 10CFR50.46b(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.

RESPONSE:

The Seabrook Station Updated Final Safety Analysis Report (UFSAR) describes the licensing basis relative to conformance with 10 CFR 50.46(b)(5), "Long-Term Cooling" and Regulatory Guide 1.82, Rev. 0 "Water Sources for Long-Term Recirculation Cooling Following a Loss-Of-Coolant Accident" specifically with regard to Seabrook Station's ability to provide extended decay heat removal including related assumptions for debris that could block containment emergency sump screens.

As identified in section 6.2.2.2.j of the UFSAR, the containment recirculation sumps and screens were designed to meet the intent of Regulatory Guide 1.82. As a result of this commitment, it was assumed that the systems that draw from the sumps for emergency core cooling and containment spray may experience sump blockage of up to 50 % of the effective sump screen area from debris generated as a result of a loss of coolant accident (LOCA) and still limit the maximum approach velocity to approximately 0.2 ft/sec. With an approach velocity of 0.2 ft/sec, debris with a specific gravity of 1.05 or more will settle to the floor prior to reaching the sumps. In this analysis, 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 submitted as part of the licensing basis for Seabrook Station demonstrates, however, that even with this blockage, the emergency core cooling and containment spray systems will continue to provide sufficient cooling flow to meet the long-term cooling functions required to conform with 10 CFR 50.46(b)(5). As identified in section 6.2.2 of the Seabrook Safety Evaluation Report (NUREG-0896), the NRC staff determined that Seabrook Station sump design satisfies the provisions of Regulatory Guide 1.82.

As identified above, coatings are not treated separately in the licensing basis for Seabrook Station because the sump screen blockage assumption does not distinguish among the sources for the LOCA-generated debris. As a conservative measure, a limit for the amount of unqualified coatings at Seabrook Station of 27,000 ft² has been established. Additionally, an engineering evaluation concluded that the existing inventory of unqualified paint (approximately 18,000 ft²) in the Seabrook Station containment will not adversely affect plant systems during a design basis loss of coolant accident. The limited amount of potential paint flake debris from unqualified coatings is sufficiently dense to settle out prior to reaching the containment sump suction screens and therefore will not impede coolant recirculation flow from the containment sump or cause blockages in spray nozzle passages or heat exchanger tubes.

REQUIRED INFORMATION:

The following information shall be provided:

- (a) If commercial-grade coatings are being used at your facility for Service Level I 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.**

RESPONSE:

North Atlantic does not currently employ commercial grade dedication for Service Level 1 coatings used inside containment at Seabrook Station.