

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:
E. Roy Hawkens, Chair
Dr. Paul B. Abramson
Dr. Anthony J. Baratta**

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In the Matter of:)	September 14, 2007
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AmerGen Energy Company, LLC)	
)	Docket No. 50-219
(License Renewal for Oyster Creek Nuclear)	
Generating Station))	
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)	

**AMERGEN'S PRE-FILED SURREBUTTAL TESTIMONY
PART 5
THE EPOXY COATING**

I. WITNESS BACKGROUND

Q. 1: Please state your name and current title. The Board knows that a description of your current responsibilities, background and professional experience was provided in Part 5 of AmerGen's pre-filed Direct Testimony on July 20, 2007, so there is no need for you to repeat that information here.

A. 1: (JRC) My name is Jon R. Cavallo. I am Vice President of Corrosion Control Consultants and Labs, Inc., and Vice-Chairman of Sponge-Jet, Inc.

Q. 2: Please summarize the purpose of this SurRebuttal Testimony and your overall conclusions.

A. 2: (JRC) The purpose of this SurRebuttal Testimony is to respond to the information provided in Citizens' Rebuttal Statement Regarding Relicensing of Oyster Creek Nuclear Generating Station ("Citizens' Rebuttal Statement") and in the Pre-Filed Rebuttal Testimony of Dr. Rudolf H. Hausler, regarding the epoxy coating system installed on the exterior of the OCNGS drywell shell in the sand bed region. My overall conclusions are that Citizens have presented no new information that would call into question my previous conclusion that the epoxy coating system should preclude further corrosion of the exterior drywell shell in the sand bed region, and that Dr. Hausler's expertise appears to be fundamentally inapplicable to that epoxy coating system.

II. RESPONSE TO CITIZENS' REBUTTAL

Q. 3: Do you agree with Dr. Hausler's statement that "tests with the wet sponge technique . . . as standardized by NACE are quite simple to carry out and it is unclear why these tests were not done."? (Citizens' Exh. 39, page 17).

A. 3: (JRC) No, I do not. Discontinuity (holiday) testing using the wet sponge technique is not required for a coating system in atmospheric service when benign exposure conditions exist, such as in the sand bed region of OCNGS. The NACE standard that Dr. Hausler refers to is SP0188-2006, "Standard Practice / Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates." In the Forward to the NACE standard, the following statement appears, with italics added for emphasis:

This standard was originally prepared in 1988 by Task Group T-6A-37, a component of Unit Committee T-6A on *Coating and Lining Materials for Immersion Service*. It

was reaffirmed in 1990, revised in 1999, and reaffirmed in 2006 by Specific Technology Group (STG) 03. This standard is issued by NACE International under the auspices of STG 03 on *Protective Coatings and Linings: Immersion and Buried*.

It is evident from this Forward that discontinuity (holiday) testing using the wet sponge technique is intended for use in aggressive corrosion environments, such as encountered in buried or underwater service, and not for benign atmospheric conditions such as those found in the OCNGS sand bed region.

Q. 4: Dr. Hausler has stated that “Residual stresses . . . can lead to spontaneous cracking, particularly under conditions of constant vibration and fatigue and elevated temperature.” (Citizens’ Exh. 39, page 17). What is your response to this statement?

A. 4: (JRC) Dr. Hausler’s statement demonstrates a lack of understanding of the exposure conditions of the three-coat epoxy coating system applied to the drywell exterior in the OCNGS sand bed region. The exterior surface of the OCNGS drywell in the sand bed region is not subject to vibration or flexure (fatigue) during normal plant operations, and as stated in AmerGen’s Direct Testimony, Part 6, A.19, the reasonable operating internal temperature in the sand bed region of 130°F is far below the maximum allowable continuous temperature limit of the three-coat epoxy coating system (250°F). Applicant’s Exhibit 35 (Devran 184 data sheet).

Q. 5: Dr. Hausler also warns that “epoxy coatings are subject to spontaneous delamination as a consequence of abrupt pressure drops.” (Citizens’ Exh. 39 at 17). Does this warning apply to the coating on the exterior sand bed region?

- A. 5: (JRC) No, it does not. The only pressure changes that will be encountered in the OCNCS exterior sand bed region will be as a result of changes in environmental conditions within the reactor building that would result in slow increases and decreases of pressure. Small, slow fluctuations in atmospheric pressure will not cause the “spontaneous delamination” phenomenon proposed by Dr. Hausler.
- Q. 6: Please respond to Dr. Hausler’s allegation in A.18 that “areas of the shell in the sandbed region were not coated with epoxy because they are inaccessible.”
- A. 6: (JRC) Citizens’ A.18 makes clear that Dr. Hausler bases his allegation on two documents: Citizens’ Exhibits 40 and 41. As discussed below, neither of these documents supports Dr. Hausler’s allegation.

Exhibit 40 is a November 2006 AmerGen e-mail discussing the *possibility* that parts of the exterior drywell shell in the sand bed region are not coated with epoxy. It states that “[a]ssuming there are areas that could not be accessed and/or protective coating applied. . .” And its discussion is based entirely on a historical document that pre-dated the cleaning and coating of the exterior shell. Therefore, this historical source cannot possibly provide reliable evidence of whether areas of the shell were not coated because it was written before the coating was applied.

Exhibit 41 also does not support Dr. Hausler’s allegation, for the same reasons as Exhibit 40. Exhibit 41 is a two-page excerpt from a GPUN evaluation written in December 1992. The evaluation similarly talks about the coating of the exterior of the drywell shell in the future tense, for example: “some patches of the drywell exterior may be left uncleaned and/or uncoated.”

The workers who inspected the external coating in all ten bays during the 2006 refueling outage confirmed that all of the areas were coated. These actual visual observations clearly trump Dr. Hausler's speculation, which is based on documents that pre-date application of the epoxy coating.

II. DR. HAUSLER'S EXPERTISE

Q. 7: Are you aware of any new information about Dr. Hausler's expertise with regard to the OCNGS epoxy coating system?

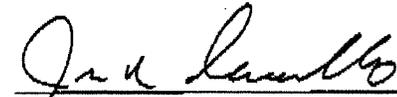
A. 7: (JRC) Yes. Citizens submitted additional information about Dr. Hausler's qualifications and the papers he has authored in their response to AmerGen's Motion in Limine of July 27. Dr. Hausler identified some articles that are attached as Applicant's Exhibit 57 (R. H. Hausler, et al., "Corrosion Management in the Arun Oil Field," 1996), Applicant's Exhibit 58 (R.H. Hausler, et al., "Development of a Corrosion Inhibition Model I: Laboratory Studies," 1999), and Applicant's Exhibit 59 (R.H. Hausler, et al., "Development of a Corrosion Inhibition Model II: Verification of Model by Continuous Corrosion Rate Measurements Under Flowing Conditions with a Novel Downhole Tool," 1999). I was not able to retrieve these documents in time to incorporate any comments on them into AmerGen's Rebuttal Testimony. I have now reviewed these papers and the topics discussed in them confirm that Dr. Hausler's expertise is primarily in oil field applications that have very little in common with OCNGS epoxy coating system and the benign sand bed region environment that the epoxy coating system is exposed to.

In closing, my review has identified no evidence that Dr. Hausler serves on any NACE or EPRI or other technical committees, or has any experience related to coatings in atmospheric service.

Q. 8: Does this conclude your testimony?

A. 8: (JRC) Yes.

In accordance with 28 U.S.C. § 1746, I state under penalty of perjury that the foregoing is true and correct:



Jon R. Cavallo

13 September 2007
Date