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September 18, 2007

VIA E-MAIL and U.S. MAIL

Judge E. Roy Hawkens, Chair
Atomic Safety and Licensing Board Panel
Mail Stop - T-3 F23
United States Nuclear Regulatory Commission
Washington, DC 20555-0001

Transmits Confidential Information
~~Not for Public Disclosure pending release~~
pursuant to 10 C.F.R. §2.1207(a)(3) *90/*

Re: Submittal of Proposed Questions Pursuant to 10 C.F.R. § 2.1207(a)(3) Regarding Sur-Rebuttal Testimony; AmerGen Energy Company, LLC (License Renewal Proceeding for Oyster Creek Nuclear Generating Station) Docket No. 50-219

Dear Judge Hawkens:

In accordance with 10 C.F.R. § 2.1207(a)(3), Citizens are submitting confidential information in the form of the attached questions for the Board to consider asking AmerGen and NRC staff during the hearing in September. These questions are based sur-rebuttal testimony submitted by AmerGen and on NRC Staff and on September 14, 2007.

Respectfully Submitted,

Richard Webster
Richard Webster

cc: Service List (with copy of nonconfidential information only)

DOCKETED
USNRC

December 19, 2007 (9:55am)

OFFICE OF SECRETARY
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UNITED STATES OF AMERICA
BEFORE THE NUCLEAR REGULATORY COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)	
)	Docket No. 50-0219-LR
AMERGEN ENERGY COMPANY, LLC)	
)	ASLB No. 06-844-01-LR
(License Renewal for the Oyster Creek)	
Nuclear Generating Station))	September 19, 2007

CERTIFICATE OF SERVICE

I, Richard Webster, of full age, certify as follows:

I hereby certify that on September 19, 2007, I caused Submittal of Proposed Questions Pursuant to 10 C.F.R. § 2.1207(a)(3) Regarding Sur-Rebuttal Testimony to be served via e-mail and U.S. Postal Service (as indicated) on the following:

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CERTIFICATION OF SERVICE AND COVER LETTER ONLY

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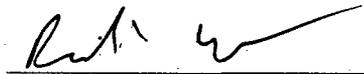
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Signed: 
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Dated: September 19, 2007

ETD

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
OFFICE OF THE SECRETARY

ATOMIC SAFETY AND LICENSING BOARD

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

In the Matter of)	
)	Docket No. 50-219
AMERGEN ENERGY COMPANY, LLC)	
OYSTER CREEK NUCLEAR)	
GENERATING STATION)	
)	September 18, 2007
License Renewal for Oyster Creek Nuclear)	
Generating Station)	

**CITIZENS' PROPOSED QUESTIONS REGARDING AMERGEN AND NRC
STAFF SUR-REBUTTAL TESTIMONY**

PRELIMINARY STATEMENT

In accordance with an Order from the Atomic Safety and Licensing Board (the "Board"), dated April 17, 2007, these proposed questions for the Board to ask witnesses from AmerGen Energy Company LLC ("AmerGen") and the NRC Staff are submitted on behalf of Nuclear Information and Resource Service, Jersey Shore Nuclear Watch, Inc., Grandmothers, Mothers and More for Energy Safety, New Jersey Public Interest Research Group, New Jersey Sierra Club, and New Jersey Environmental Federation (collectively "Citizens").

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PROPOSED QUESTIONS

I. Proposed Questions for Panel 1: Drywell Physical Structure, History, Commitments

A. AmerGen: John O'Rourke, Fred Polaski, Michael Gallagher

1. Purpose

The purpose of the questioning is to:

- i) establish that the airflow in the sandbed region is restricted;
- ii) enquire further about forced outages.

2. Proposed Questions

- i) You have testified that the sand bed region does not have limited air exchange. Is the foundation of your assertion that there a number of pipes that penetrate the biological shield wall have 3 inches of clearance around them?
- ii) Are there any measurements of the amount of air exchange?
- iii) With regard to forced outages, how long would it take to apply to strippable coating and tape?
- iv) How much warning do you get of a forced outage?
- v) Is it realistic to expect that you could apply the strippable coating and tape in a forced outage situation?

B. NRC Witnesses

No questions.

II. Proposed Questions for Panel 2: Acceptance Criteria

A. AmerGen: Michael Gallagher, Peter Tamburro, Ahmed Ouaou

1. Purpose

The purpose of the questioning is to:

- i) establish that local area acceptance criterion must be interpreted in a way that can be applied to the data;
- ii) discover how AmerGen applies the acceptance criteria to non-square shapes that extend beyond the boundary of the cut-out tray shape.

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- iii) Establish that the drywell shell must also meet ASME Section III to be within the CLB.

2. Proposed Questions

Where indicated by a *, please consider asking the question of NRC Staff witnesses in addition to AmerGen witnesses.

- i) Are acceptance criteria for parameters you do not measure useful?*
- ii) AmerGen witnesses have testified that AmerGen cannot estimate the volume of lost metal on the exterior of the drywell (Sur-rebuttal Part 3 at A9). In this light, why is it useful to regard the local area acceptance criterion as volumetric?
- iii) Can AmerGen estimate the average thickness of the thinnest 3 feet by 3 feet area in each Bay?
- iv) If so, wouldn't it be more useful to regard the local area acceptance criterion as imposing a restriction on that thickness among other things? If not, how can you estimate how much more metal would need to be lost before the shell violates the local area acceptance criterion?
- v) Can AmerGen estimate the largest contiguous area in each Bay that is thinner than 0.736 inches?
- vi) If so, wouldn't it be more useful to regard the local area acceptance criterion as imposing a restriction on that area? If not, how can you estimate how much more metal would need to be lost before the shell violates the local area acceptance criterion?
- vii) Hypothetically, if there were an area that was 4 feet by 2 feet, had boundaries that were 0.736 inches thick, and had an average thickness of 0.636 inches, would that violate the local area acceptance criterion?*
- viii) What if the thickness were just less than 0.736 inches?*
- ix) Generally, how does AmerGen accept areas that are not square and go beyond the envelope of the cut-out tray that GE modeled?*
- x) Do you agree that compliance with ASME code Section III is also part of the CLB?*
- xi) If not, please explain.*
- xii) Do you agree that to comply with the CLB the calculated factor of safety for buckling during a refueling outage with all the loads applied must be 2.0 or greater?*

B. NRC Staff

The purpose of the questions is to clarify how the NRC Staff interpret the acceptance criteria.

Repeat indicated questions asked of AmerGen and consider asking the following questions:

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- i) AmerGen witnesses have testified that AmerGen cannot estimate the volume of lost metal on the exterior of the drywell (Sur-rebuttal Part 3 at A9). In this light, does the NRC Staff think it useful to regard the local area acceptance criterion as volumetric? to regard the local area acceptance criterion as volumetric?
- ii) If so, how can you ever find non-compliance with a volumetric criterion if AmerGen cannot estimate the lost volume? If not, how can the local area acceptance criterion be interpreted in a way that can be applied to the measured data?

III. Proposed Questions for Panel 3: Available Margin

A. AmerGen Fred Polaski, David Harlow, Julien Abramovici, Peter Tamburro

1. Purpose

The purpose of the questioning is to:

- i) establish that in February 2007, AmerGen intended to use the external measurements to represent the thickness of each bay do not represent the average thickness of each bay;
- ii) establish that comparing the lower 95% confidence limit of each parameter to be compared with each the acceptance criterion would provide greater certainty of compliance;
- iii) establish that if a number of different parameters show compliance at a given confidence level, then it is likely that some non-compliance results, unless the confidence level is much higher than the total number of parameters;
- iv) establish that AmerGen does not know whether the margin above the mean acceptance criterion is the narrowest margin;
- v) establish whether AmerGen deliberately failed to respond to the allegation that Calc. 24 Rev. 2 shows that the extent of areas thinner than 0.736 inches is already larger than 9 square feet in Bay 1;
- vi) establish that there is no foundation for the assertion that the drywell is actually "much thicker" than the external measurements suggest.

B. Proposed Questions

Where indicated by a *, please consider asking question of NRC Staff witnesses in addition to AmerGen witnesses.

- i) Referring to Citizens' Exhibit 65, why did AmerGen propose to use the external measurements to characterize the drywell?
- ii) Why did AmerGen change its approach?

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- iii) Does AmerGen/NRC believe it is important that Oyster Creek comply with all the acceptance criteria set for the plant?*
- iv) Do you agree that if the lower 95% confidence limit of the mean estimated thickness was less than 0.736 inches, there would be a greater than one in forty chance of non-compliance?*
- v) Do you think that is acceptable?*
- vi) If yes, what chance of non-compliance would be unacceptable?*
- vii) When the operator used the regression method didn't effectively take into account the uncertainty in the initial mean thickness by projecting the 95% confidence limits forward in time?*
- viii) If yes, why has this changed so that the operator no longer takes account of the uncertainty of the mean thickness?*
- ix) Comparing the evaluation of Bay 1 presented in AmerGen Ex. 44 and that presented in AmerGen Ex. 16 at 29, these are different aren't they? (the evaluation area is shifted to the right).
- x) Why are they different?
- xi) Are the internal grids in Bay 1 above the worst corrosion?*
- xii) How do the internal grids assist you to evaluate the thickness of the most corroded areas of Bay 1?*
- xiii) In AmerGen Sur-rebuttal Test. part 3 A.11 you fail to respond to the allegation that AmerGen Ex. 16 at 34 shows a 3 foot by 3 foot area that is less than 0.736 inches in average thickness. Why is that?
- xiv) Would an area that 3 feet by 3 feet in extent whose average thickness is 0.693 inches, fail the local area acceptance criterion?*
- xv) If not, how large and how thin would it have to be to fail the local area acceptance criterion? If yes, didn't Calc. 24 Rev. 2 find such an area in Bay 1?*
- xvi) From the measurements taken can you tell with any precision how large the areas that are less than 0.736 inches are?*
- xvii) If yes, how best can this be done and how large are the areas thinner than 0.736 inches in each Bay? If not, how can we be sure that the drywell meets the local area acceptance criterion?*
- xviii) Do you agree with Dr. Hausler's latest assessment that the areas labeled 36 inches by 36 inches depicted on AmerGen Ex. 16 at 29, 34 must actually be larger than that to accommodate the points shown?*
- xix) Do you agree with Dr. Hausler that the assumptions behind the contour plots are the same assumptions made in Calc. 24 Rev 2?*
- xx) Do you think the contour plots provide a better indication of what the data show than Calc. 24 Rev. 2?*
- xxi) If not, why not?
- xxii) Doesn't the visual observation quoted in AmerGen Sur-Rebuttal Test. Part 3 A16 suggest that even if the external points are mainly located at the thinnest points identified visually, the bias to the thin side would be small due to the "small differences between 'thick' areas and the 'thin' areas??"*
- xxiii) Isn't this reinforced by the local roughness measurements which saw a roughness of around 0.01 inches?*

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- xxiv) Does Mr. Gordon your expert agree that "corrosion has been arrested?" (ref. AmerGen Rebuttal Test. Part 6 A17 (future corrosion is "near zero"))
- xxv) In AmerGen Sur-Rebuttal Test. Part 3 A17, are you suggesting the argument about over-grinding is not important?
- xxvi) Is the over-grinding argument a red herring?

C. NRC Staff

Purpose is to find out the NRC Staff's position on the certainty with which compliance must be established, whether a factor of safety of 2.0 is required, and whether the drywell complies with the local area acceptance criterion. Proposed questions are as follows:

- i) Consider repeating indicted questions asked of AmerGen;
- ii) You have testified in NRC Staff Rebuttal Test at A43 that the staff took the higher 95% confidence limit of the corrosion rate. Isn't it logically consistent to also look at the lower 95% confidence limit of each thickness parameter to be compared to an acceptance criterion to determine the existing margin?
- iii) If not, why not?
- iv) Referring to Citizens' Ex. 60 at 77, 82 did Sandia National Laboratory decide using a modified capacity reduction factor in their study was "not appropriate" and could not be justified?
- v) Explain why the condition of the drywell is now more certain than it was when it was designed?
- vi) Doesn't the introduction of variable corrosion that is hard to measure introduce major additional uncertainty?
- vii) Doesn't the local area sensitivity analysis (AmerGen Ex. 39) indicate that local areas thinner than 0.736 inches could have a material effect on the factor of safety even if the rest of the shell is thicker than 0.736 inches?
- viii) Even though symmetry increases the size of the cut outs modeled in AmerGen Ex. 39 to 3 feet by 3 feet, isn't it still true that the largest contiguous area thinner than 0.736 inches modeled in each Bay is 3 feet by 1.5 feet? (See AmerGen Ex. 39 at Figure 1a)
- ix) Don't the assessments of both Dr. Hausler and AmerGen indicate that at least approximately 21 square feet of the drywell shell are probably thinner than 0.736 inches?
- x) Given theses assessments, what is your current estimate of the factor of safety for the refueling case?
- xi) Can you put confidence limits on that estimate?

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IV. Proposed Questions for Panel 4 Sources of Water

A. AmerGen: John O'Rourke, Ahmed Ouaou, Francis Ray

1. Purpose

The purpose of the questioning is to establish:

- i) whether the reactor cavity concrete trough is subject to ongoing degradation;
- ii) whether there has been sufficient allowance for forced outages;
- iii) that the reason there is no certainty about whether condensation has occurred in the past is because AmerGen failed to meet its commitments to monitor the water draining from the exterior of the sandbed region.
- iv) that the most likely source of the water found in 2006 in the sand bed drains was condensation.

2. Proposed Questions

- i) Is the reactor cavity trough subject to ongoing degradation?
- ii) If so, how often does AmerGen check the reactor cavity trough and how promptly is it repaired when degradation is identified? If not, how does AmerGen account for the degraded condition of the trough observed in 1996?
- iii) How many days of unscheduled outages occurred in each of the last five years?
- iv) Isn't it correct that water was found in the drywell drains in 2006?
- v) Why isn't there any clear evidence about where that water came from?
- vi) In your opinion where did it come from?
- vii) If reactor cavity, why didn't it contain any activity?
- viii) How long are the longest lived radionuclides present in spent fuel pool water?

B. NRC Staff

No proposed questions.

V. Proposed Questions for Panel 5: The Epoxy Coating

A. AmerGen: Jon Cavallo

The purpose of the questioning to confirm that there is no possibility of any uncoated areas of the drywell remaining. The proposed questions are as follows:

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1. You have testified that the workers who inspected the coating confirmed that all areas of the drywell were coated. Have you definitively ruled out the existence of uncoated inaccessible areas that the workers were not able to see?

B. NRC Staff

1. No proposed questions.

VI. Proposed Questions for Panel 6: Future Corrosion

A. AmerGen: Barry Gordon and Edwin Hosterman

1. Purpose

The purpose of the questioning is to establish:

- i) the potential rate of future interior and exterior corrosion has been assessed at 3 mils each, leading to a total corrosion rate of 6 mils per year;
- ii) the air flow assumptions made by Dr. Hosterman are unverified.

2. Proposed Questions

- i) Referring to Citizens' Exhibit 64, do you agree that e-mails between yourself and Exelon employees or contractors reflect discussion of a potential corrosion rate of 3 mils per year from both the interior and the exterior of the sandbed?
- ii) Please explain how this discussion arose.
- iii) Who estimated the corrosion rates?
- iv) Do you believe those are reasonable corrosion rates to assume?
- v) If not, please provide a numerical estimate of a reasonable future corrosion rate from both the interior and the exterior.
- vi) How certain are these predictions of the future corrosion rates?
- vii) Do you believe these rates should be doubled to calculate the monitoring frequency as suggested by you in AmerGen Rebuttal Test. Part 6 at A5?
- viii) Turning to the evaporation calculation, have you verified how the humidity in the drywell changes with time on start-up?
- ix) Isn't the air flow restricted to some extent because it has to come through 3 inch wide gaps around the ventlines?
- x) Have you verified that the postulated chimney effect actually occurs?
- xi) Doesn't the equation you have used assume that the air flow is unrestricted?
- xii) Won't the areas towards the bottom of the sandbed, which are also at the lowest temperature, tend to suffer from poor air circulation?
- xiii) In case of humid or foggy weather, wouldn't the rate of evaporation be slower than estimated?

- xiv) What is the range of temperatures experienced by the sand during operation from the bottom to the top?

B. NRC Staff

The purpose of the questioning to find out what NRC Staff regard as the appropriate future corrosion rate.

The proposed questions are as follows:

- i) NRC Staff has suggested that the upper 95% confidence limit of the corrosion rate should be used as an estimate of future corrosion. Does the Staff believe that the future corrosion rates from both the interior and the exterior are sufficiently well known to allow the upper 95% confidence limit to be calculated?
- ii) If not, what does the Staff propose should be used for the future corrosion rates? If so, is the estimate of 2 mils per year for the future corrosion rate the total corrosion rate, including the interior and the exterior?
- iii) If not, what is the total estimated corrosion rate?
- iv) Is the estimate of the total corrosion rate the mid-range estimate or the upper 95% confidence limit?
- v) If the mid-range, what is the upper 95% confidence limit?

VII. Proposed Questions for Panel 7: Other Questions

No Proposed Questions.

Respectfully submitted

Richard Webster, Esq
RUTGERS ENVIRONMENTAL
LAW CLINIC
Attorneys for Petitioners

Dated: September 18, 2007