

10 CFR 50.90
10 CFR 50.67February 2, 2007
2130-07-20454U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001Oyster Creek Generating Station
Facility Operating License No. DPR-16
NRC Docket No. 50-219**Subject:** Response To Request For Additional Information – License Amendment
Request No. 315, “Application of Alternative Source Term” (TAC No. MC6519)

- References:**
- (1) Letter from P. B. Cowan (AmerGen) to USNRC, dated March 28, 2005,
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- “License Amendment Request No. 315 – Application of Alternative Source
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- Term”
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- (2) Letter from G. E. Miller (USNRC) to C. M. Crane (AmerGen), dated
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- December 19, 2006, “Request for Additional Information Regarding License
-
- Amendment Request For Application of the Alternate Source Term
-
- Methodology (TAC No. MC6519)”
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- (3) Letter from P. B. Cowan (AmerGen) to USNRC, dated January 24, 2007,
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- “Response to Request for Additional Information – License Amendment
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- Request No. 315, “Application of Alternative Source Term
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- (TAC No. MC6519)”

Oyster Creek License Amendment Request No. 315, regarding the application of alternate source term methodology, was submitted to the NRC for review on March 28, 2005 (Reference 1). The NRC issued a request for additional information (RAI) on December 19, 2006 (Reference 2). This letter provides the additional information in response to the NRC RAI Question Numbers 2.c, 3, and 5, contained in Reference 2. The additional information is provided in Enclosure 1. Responses to the remaining NRC questions were previously submitted in Reference 3.

No new regulatory commitments are established by this submittal. If any additional information is needed, please contact David J. Distel at (610) 765-5517.

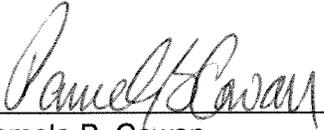
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I declare under penalty of perjury that the foregoing is true and correct. Executed on the 2nd day of February, 2007.

Respectfully,

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Pamela B. Cowan
Director - Licensing & Regulatory Affairs
AmerGen Energy Company, LLC

Enclosures: 1) Response to Request for Additional Information

cc: S. J. Collins, USNRC Administrator, Region I
G. E. Miller, USNRC Project Manager, Oyster Creek
M. S. Ferdas, USNRC Senior Resident Inspector, Oyster Creek
File No. 03079

ENCLOSURE 1

OYSTER CREEK

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST No. 315

APPLICATION OF ALTERNATIVE SOURCE TERM

This RAI response addresses Questions 2.c, 3, and 5 contained in the NRC RAI, dated December 19, 2006. The remaining questions in the RAI were addressed in the AmerGen letter to NRC, dated January 24, 2007. Sensitivity values developed in response to the RAI's below are provided for information only.

NRC Question No. 2

RG 1.183 Position 4.5 states that technical specification values should be used. Position 6.2 states a similar position for the main steam isolation valves. Given that secondary bypass leakage rate is calculated as a function of pressure:

- c. Provide the results of a sensitivity study to show the difference between the time-dependent leakage assumption and the results using the technical specification leakage.

Response

A sensitivity case has been performed assuming the Oyster Creek Technical Specification (TS) 4.5.D values for total containment leakage (L_a) of one percent of the primary containment free volume per day (i.e, 2.14 cfm) and Main Steam Isolation Valve (MSIV) leakage of 11.9 scfh at ≥ 20 psig. This case considered the maximum leak rate for MSIV leakage, as well as for other secondary containment bypass, to be applied from $t = 0$ to $t = 24$ hours. Beyond 24 hours, the MSIV and bypass leak rates have been reduced by a factor of two, as allowed by Regulatory Guide 1.183. These leak rates are subtracted from L_a (as in the current analysis) to obtain the general containment leak rate (that which is collected by the Standby Gas Treatment System (SGTS)), and this general containment leak rate is also decreased by a factor of two at 24 hours.

The result is an increase in the control room immersion and inhalation doses from 2.99 rem TEDE to 4.78 rem TEDE. When the external source shine contribution (0.62 rem) is added, the total dose to the operator would become 5.40 rem TEDE, 8% over the 5 rem TEDE limit for dose to the most-exposed control room operator.

As stated in the January 24, 2007 Oyster Creek response to NRC Question 2.b, the assumption of time-dependent leakage used in the License Amendment Request No. 315, dated March 28, 2005, remains conservative and is consistent with the current Oyster Creek licensing basis.

NRC Question No. 3.

On page 33 of Attachment 1 to the March 28, 2005, submittal, AmerGen states that the current licensing basis for Oyster Creek includes an assumption of full mixing credit for dilution/mixing in the secondary containment. Please provide a reference for the NRC staff approval of this assumption. If applicable, provide a sensitivity study supportive of assuming full mixing credit.

Response

The assumption of complete mixing in the secondary containment was accepted for use in the Oyster Creek licensing basis as documented in the NRC letter to Oyster Creek, dated

September 2, 1982 (LS05-82-09-011), "Safety Evaluation of SEP Topic XV-19, "Radiological Consequences of a Loss Of Coolant Accident"," which provided the staff's final evaluation of this Integrated Plant Safety Assessment Systematic Evaluation Program (SEP) Topic for Oyster Creek.

A sensitivity study has shown that if no credit is taken for hold-up in the secondary containment, the control room inhalation and immersion dose increases from 2.99 rem TEDE to 3.48 rem TEDE, resulting in a 0.49 rem increase. If the external source shine contribution of 0.62 rem is included, the control room dose would become 4.10 rem TEDE. However, it is noted that a significant fraction of the 0.62 rem is due to shine from the secondary containment; and if it is assumed that no hold-up occurs and the 0.49 rem penalty is taken for the control room operator immersion and inhalation dose, the external shine contribution will decrease by nearly as much as the immersion and inhalation contribution increases.

Therefore, removal of credit for secondary containment mixing would have a minimal net effect. This supports the existing licensing basis assumption of full mixing.

NRC Question No. 5.

Address the aggregated effects of the assumptions discussed in questions 2 through 4, above. (Note questions 2 through 4 are contained in the NRC RAI, dated December 19, 2006.)

Response

A sensitivity case has been prepared that includes:

- The MSIV, other secondary containment bypass, and general containment leak rates as analyzed in the response to Question 2.c, above, (technical specification leakage for the first 24 hours, reduced by a factor of two at 24 hours),
- No credit for secondary containment hold-up as analyzed in the response to Question 3, above, and
- A limit on the elemental iodine removal rate of 20 per hour (as discussed in the January 24, 2007 response to Question 4.b) and no impaction credit for elemental iodine adsorbed on aerosol at the entrance to the secondary containment bypass pathways or deposition credit in the pathways themselves.

The control room immersion and inhalation dose for this case is 5.43 rem TEDE. With the 0.62 rem added for shine from sources external to the control room, the total becomes 6.05 rem TEDE. However, as noted in the response to Question 3, above, the decision to ignore hold-up in the secondary containment would greatly reduce the 0.62 rem contribution.

Although the aggregated effects of these additional conservatisms result in doses greater than the limit, the Oyster Creek modeling assumptions utilized in accordance with the existing licensing basis (not affected by alternative source term) are conservative and result in calculated dose values within allowable limits.