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| AUTH.NAME | AUTHOR AFFILIATION |
|---|---|
| CURTIS,N.W. | Pennsylvania Power & Light Co. |

| RECIP.NAME | RECIPIENT AFFILIATION |
|---|---|
| SCHWENCER,A. | Licensing Branch 2 |

SUBJECT: Responds to question concerning FSAR Figures 12.3-9 through 12.3-18 re radiation source terms & shielding.Changes in radiation sources & shielding requirements listed.Revs do not impact compliance w/NUREG-0737 requirements.

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PP&L Pennsylvania Power & Light Company
Two North Ninth Street • Allentown, PA 18101 • 215 / 770-5151

Norman W. Curtis
*Vice President-Engineering & Construction-Nuclear*
215/770-7501

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Director of Nuclear Reactor Regulation
Attention: Mr. A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION
FSAR CHANGES FOR RADIATION SOURCE
TERMS AND SHIELDING
ER 100450 FILE 841-01 Docket Nos. 50-387
PLA-2187 50-388

Dear Mr. Schwencer:

This letter is provided in response to questions from Mr. John Mimms of your staff regarding changes to FSAR Figures 12.3-9 through 12.3-18 made in Revision 31 to the FSAR.

The Susquehanna FSAR Radiation Source Tables 12.2-1 through 12.2-40 and the Radiation Zoning and Shielding Drawings, Figures 12.3-8 through 12.3-27 have undergone three separate reviews. Initially, they were reviewed to evaluate any changes in system design, including equipment layout and pipe routing changes. Next they were reviewed to confirm and document that the civil structural design remained adequate with respect to the shielding requirement. Finally, they were reviewed to compare the as-built conditions with the FSAR to ensure consistency.

The radiation sources and shielding requirements indicated in the FSAR are based on specific plant and equipment conditions. As a result of the above mentioned reviews, it was noted that changes in several areas of the plant affected the design assumptions used to generate radiation sources and shielding requirements.

Changes in the radiation sources and shielding requirements can be grouped as follows:

A. The as-built review incorporated the latest revision of General Electric's radiation source document in which the N-16 concentrations were reduced from 100 uCi/g to 50 uCi/g. This reduction resulted in shield designs dominated by N-16 being more conservative (by as much as a factor of 2).

B. Piping and equipment layout changes affected some of the transit times used in activity calculations. A relatively small change in transit times

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for sources dominated by N-16 can have an impact on activity and shielding calculations.

C. Early Susquehanna activity calculations were based on conservative assumptions concerning equipment design and function in order to avoid any significant modifications to shielding late in the construction phase. In the as-built review, greater detail about the equipment was available. Changes involving accumulation rates, source volumes, and source modeling were made in some calculations in order to reduce the excess in conservatism and to reflect the as-built equipment design. As a result some concrete thicknesses have been reduced.

The revisions discussed above, which includes those in question, did not impact Susquehanna's compliance with NUREG-0737 (post-accident shielding study).

The above discussed FSAR reviews were repeated for Unit 2. There were no significant differences noted between Unit 1 and Unit 2.

The above discussion should clarify the questions raised by Mr. Mimms. Should further clarification be required, please call Mr. W. W. Williams at (215) 770-7856.

Very truly yours,

NW Curtis

N. W. Curtis
Vice President-Engineering & Construction-Nuclear

cc: R. L. Perch - NRC
J. Mimms - NRC