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October 18, 1989

Dr. Thomas E. Murley, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Subject: Dresden Nuclear Power Station Unit 3  
Extension of ABB-ATOM Control Rod  
Demonstration Program  
NRC Docket No. 50-249

- References (a): D.M. Crutchfield letter to D.L. Farrar dated March 9, 1984, Amendment 47 to the Dresden Unit 3 License.
- (b): ASEA-ATOM Report UR 87-102, Revision 1, ASEA-ATOM Control Rods for BWR 2/3/4/5 Service Life Recommendations, April 15, 1987.
- (c): Conference Call between CECO (J.A. Silady, M.E. Wagner, et al.) and NRR (B.L. Siegel and D.B. Fieno) on August 2, 1989.
- (d): ASEA-ATOM Topical Report UR 85-225A, ASEA-ATOM BWR Control Rods for US BWRs, October 1, 1985.

Dr. Murley:

Commonwealth Edison (CECO) is planning to extend the subject demonstration control rod program at Dresden Unit 3, License No. DPR-25. CECO, ABB-ATOM (formerly ASEA-ATOM) and EPRI have jointly participated in a control rod demonstration program at Dresden Unit 3 since the beginning of Cycle 9. This demonstration program involves the irradiation of eight ABB-ATOM lead test control rods (four of the CR-70 design and four of the CR-82 design). The program was reviewed and approved by the NRC in the Reference (a) letter. At the end of Cycle 11 (scheduled shutdown of December 2, 1989), the control rod blades will have completed the originally intended three cycles of operation/irradiation. However, upon reviewing the current and

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projected end-of-cycle exposures of the eight control rods, CECO has determined that all eight of the control rods are capable of operating two to three additional 18 month cycles in a Control Cell Core controlled location without exceeding their design service lifetimes as defined in the Reference (b) ABB-ATOM report. The current exposures of the eight control rods and their design lifetimes as defined in the Reference (b) report are listed in Attachment 1.

All eight of the ABB-ATOM control rods were considered high worth control rods (i.e. their initial worth was 6-9% greater than an original equipment control rod blade) when they were first loaded into Dresden Unit 3 for Cycle 9. As a result, CECO committed to account for the presence of the eight control rods in the design analysis for future reloads at Dresden Unit 3. However, CECO has determined, based on worth calculations performed by ABB-ATOM and projected end-of-cycle (EOC11) control blade exposures, that the eight control rods will be of equivalent worth to an original equipment control rod at the end of this cycle (EOC11). Therefore, CECO is not planning on separately modelling the eight control rods in the cycle design analysis for Dresden Unit 3 Cycle 12. These control rods will be modelled similarly to all other equivalent worth control blades.

Finally, as with the previous cycles, CECO is planning to perform a visual control rod inspection at the end of Cycle 11 prior to reuse. If the control rods do not pass this visual exam, they will not be reused and will be replaced with spare blades currently at the site.

This topic was previously discussed with B.L. Siegel (NRR Project Manager for Dresden) and D.B. Fieno (Reactor System Branch) during the Reference (c) conference call.

Please contact this office should further information be required.

Very truly yours,



J.A. Silady  
Nuclear Licensing Administrator

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Attachments

cc: A.B. Davis - Regional Administrator, RIII  
B.L. Siegel - Project Manager, NRR  
S.G. DuPont - Senior Resident Inspector, Dresden

## ATTACHMENT 1

<u>Position in Dresden 3 Core (Row/column)</u>	<u>Control Rod Type</u>	<u>Current Exposure/ Design Lifetime(snvt)</u>
39/22	CR-70	Quarters 4 2.236 /4.85 3 2.147 /4.85 2 1.473 /4.85 1 0.384 /4.55
39/38	CR-70	Quarters 4 2.233 /4.85 3 2.145 /4.85 2 1.472 /4.85 1 0.385 /4.55
23/22	CR-70	Quarters 4 2.234 /4.85 3 2.147 /4.85 2 1.478 /4.85 1 0.390 /4.55
23/38	CR-70	Quarters 4 2.228 /4.85 3 2.141 /4.85 2 1.474 /4.85 1 0.392 /4.55
47/30	CR-82	Quarters 4 1.933 /5.15 3 1.829 /4.85 2 1.454 /4.85 1 0.530 /4.55
15/30	CR-82	Quarters 4 1.944 /5.15 3 1.843 /4.85 2 1.455 /4.85 1 0.530 /4.55
31/14	CR-82	Quarters 4 1.951 /5.15 3 1.852 /4.85 2 1.454 /4.85 1 0.523 /4.55
31/46	CR-82	Quarters 4 1.950 /5.15 3 1.849 /4.85 2 1.454 /4.85 1 0.526 /4.55