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March 22, 1994

Mr. William T. Russell, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attn: Document Control Desk

Subject: Modification of the Physical Inventory Method for Fuel Assemblies

Byron Station Units 1 and 2
NPF-37/66; NRC Docket Nos. 50-454/455
Braidwood Station Units 1 and 2
NPF-72/77; NRC Docket Nos. 50-456/457
Zion Station Units 1 and 2
DPR-39/48; NRC Docket Nos. 50-295/304
Dresden Station Units 2 and 3
DPR-19/25; NRC Docket Nos. 50-237/249
Quad Cities Station Units 1 and 2
DPR-29/30; NRC Docket Nos. 50-254/265
LaSalle County Station Units 1 and 2
NPF-11/18; NRC Docket Nos. 50-373/374

References:
1. 10 C.F.R. 70.51, "Material Balance, Inventory, and Records Requirements"
2. USNRC Regulatory Guide 5.29, "Nuclear Material Control Systems for Nuclear Power Plants," dated June 1975
3. ANSI N158-1974, "Nuclear Material Control Systems for Nuclear Power Plants", approved October 22, 1974
4. USNRC Regulatory Guide 5.13, "Conduct of Nuclear Material Physical Inventories," dated November 1973

Dear Mr. Russell:

The purpose of this letter is to respectfully inform the Staff that Commonwealth Edison Company (CECo) is modifying the physical inventory method for fuel assemblies. CECo's past practice has been to inventory the fuel assembly serial numbers. In the future, this inventory will be performed by piececount.

10 CFR 70.51 requires annual physical inventories; however, there are no specific requirements for inventorying nuclear fuel assembly serial numbers (see Reference 1). The periodic checking of serial numbers is, however, included in NRC Staff guidance (Reference 2) through the endorsement of ANTI N158-1974 (Reference 3).

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Commonwealth Edison plans to meet the requirements of Reference 1 by performing piececounts for spent fuel pool inventories. To provide added assurance that all fuel movement has been performed correctly, the serial numbers of those assemblies which have been moved will be inventoried subsequent to the associated reactor inventory. Reactor inventories will continued to performed by serial number verification. In addition to those spent fuel pool assemblies which have been moved, the assemblies adjacent to those which have been moved will be inventoried by serial number verification.

The primary assurance that this modification in methodology is acceptable is that all fuel movement is done using Nuclear Component Transfer Checklists (NCTLs) which must be written or reviewed by the Nuclear Material Custodian (NMC). The NMC has an accurate knowledge of which areas of the pool are dormant and hence, do not require a serial number verification. All areas of the fuel pool which have seen movement since the last inventory would have the fuel serial numbers verified in the next inventory.

Additional assurance is provided by the centralized Nuclear Fuel Data Bank (NFDB) which tracks all fuel movement via the fuel transfer lists. Potential errors in fuel transfer lists generated by the station will be caught by the NFDB because the computerized filing system will flag attempts to move an assembly to a location already occupied or attempts to move an assembly from the wrong location.

To enhance the confidence provided by modified inventories, random sampling of serial numbers during the yearly inventories will be performed. If errors are detected, a complete serial number audit of the entire fuel pool will be conducted.

In Reference 4, the NRC Staff found reliance on previous measurements to be acceptable in material balance type SNM inventory programs. The conditions under which the such previous measurements are deemed to be acceptable should also be applicable here to the more readily determinable inventory of spent fuel assemblies. To demonstrate the reliability of previous measurements, Reference 4 suggests that the data should correctly reflect the quantity of SNM involved, i.e., that the amount of SNM has not changed between the last inventory and the present. This is a function of three conditions: (1) the source of the data, (2) the controls imposed on the generation of the data, and (3) the controls imposed on the material to which the data apply, in this case, the spent fuel assemblies.

The first two conditions are met by any full inventory of spent fuel assembly serial numbers. The third condition applies to CECo's ability to control and document non-movement of fuel assemblies in the dormant areas of the spent fuel pool. This documentation will be handled via station procedures.

Based on the above justification, CECo plans to revise the fuel assembly inventory methodology in accordance with the provisions of 10CFR50.59 from full verification of serial numbers to verification by piececount.

To the best of my knowledge and belief, the statements contained in this document are true and correct. In some respects these statements are not based on my personal knowledge, but on information furnished by other CECo employees, contractor employees, and/or consultants. Such information has been reviewed in accordance with company practice, and I believe it to be reliable.

Please address any further comments or questions regarding this matter to this office.

Respectfully,

Joseph A. Bauer

Joseph A. Bauer
Nuclear Licensing Administrator

JAB/gp

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