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SUBJECT: Forwards info re Environmental Impact of Extended Burnup/Higher Enrichments on 10CFR51.52.

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NUCLEAR

161-03856-WFC/MEP/KLMC

April 02, 1991

Docket Nos. STN 50-528/529/530

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References:
1) "Assessment of the Use of Extended Burnup Fuel in Light Water Power Reactors," NUREG/CR-5009, PNL-6258, dated February 1988.
2) "The Environmental Consequences of Higher Fuel Burnup," AIF/NESP-032, dated June 1985.
3) Notice of Environmental Assessment and Finding of No Significant Impact for Extended Burnup Fuel Used in Commercial LWRs, Federal Register (53FR6040), dated February 29, 1988.
4) NRC Assessment of the Environmental Effects of Transportation Resulting from Extended Fuel Enrichment and Irradiation, Federal Register (53FR30355), dated August 11, 1988.
5) Extended Burnup Operation of Combustion Engineering PWR Fuel, CENPD-269, Revision 1-P, dated July 1984. (161-00730, dated January 8, 1988)

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2 and 3
Environmental Impact of Extended Burnup/Higher Enrichments on 10 CFR 51.52
File: 91-056-026

This letter provides the NRC with notification that beginning with the third refueling of each PVNGS unit, PVNGS will have discharge batch average burnups greater than the conditions assumed in 10 CFR 51.52(a). Arizona Public Service (APS) submits this letter to address the environmental impact of extended fuel burnup and increased enrichment above those conditions specified in 10 CFR 51.52(a).

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In evaluating the impacts of the use of extended burnup fuel and higher enrichments, APS references the results of Pacific Northwest Laboratories (PNL) studies as documented in the NRC detailed report entitled "Assessment of the Use of Extended Burnup Fuel in Light Water Power Reactors" (Reference 1) and the AIF/NESP-032 study prepared for the Atomic Industrial Forum (Reference 2). The findings of these studies are that no significant adverse effects will result from increasing the batch average burnup level from 33 Gwd/MtU to 50 Gwd/MtU or above as long as the maximum rod average burnup level does not exceed 60 Gwd/MtU, and uranium enrichments do not exceed 5.0 weight percent (w/o) U-235.

The conclusions of these studies (References 1 and 2) are validated by assessments of the NRC relating to extended enrichment and burnup as documented in References 3 and 4.

The current Technical Specification 5.3.1 limit for enrichment is 4.05 w/o U-235 for all PVNGS Units. The current maximum peak rod burnup value is 52 Gwd/MtU with a maximum batch average discharge burnup of 45 Gwd/MtU, as documented in Reference 5. If it becomes necessary to exceed these current maximum enrichment or burnup values, APS will submit the required licensing submittals.

APS concludes that the environmental impacts summarized in Table S-3 of 10 CFR 51.51 and in Table S-4 of 10 CFR 51.52 are conservative and bound the corresponding impacts for burnup levels up to 60 Gwd/MtU and U-235 enrichments up to 5 percent by weight. These levels conservatively envelope the anticipated operational range of current and anticipated future average core burnups for the PVNGS Units.

If you should have any questions concerning this issue, contact Michael E. Powell at (602) 340-4981.

Sincerely,

WFC/MEP/KLMC

cc: J. B. Martin
D. H. Coe
A. C. Gehr
A. H. Gutterman