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SUBJECT: Forwards rev 0 to calculation ME-02-98-04, "Fracture Mechanics Evaluation of N1 Safe End" & calculation mod record CMR-98-0243, "Fracture Mechanics Evaluation of N1A Nozzle Safe End," as suppl info to ISI exam.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • Richland, Washington 99352-0968

April 29, 1999
GO2-99-083

Docket No. 50-397

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
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Gentlemen:

Subject: **WNP-2, OPERATING LICENSE NPF-21
SUPPLEMENTAL INFORMATION
ANALYTICAL EVALUATION OF INSERVICE INSPECTION
EXAMINATION RESULTS**

Reference: Letter GO2-99-057, dated March 24, 1999, DW Coleman (SS) to NRC,
"Analytical Evaluation of Inservice Inspection Examination Results, Additional
Information"

The purpose of this letter is to provide supplemental information to assist the NRC staff in review of WNP-2 Inservice Inspection activities associated with the evaluation of a planar indication found on weld number 24RRC(2)A-1 during the Spring 1998 refueling outage. The supplemental information consists of this letter and Attachments A and B.

Attachment A consists of an official copy of calculation ME-02-98-04, "Fracture Mechanics Evaluation of N1 Safe End," Revision 0, which reflects all approval signatures required by our calculation control process. This calculation is a fracture mechanics evaluation of the planar indication on weld 24RRC(2)A-1. Although technically correct, an unofficial copy of the calculation was inadvertently submitted as an attachment to the referenced letter. The unofficial copy established an examination schedule of 1020 days for weld 24RRC(2)A-1. Further refinements were subsequently made to the calculation and the official copy reflected a weld examination schedule of 870 days.

Attachment B consists of Calculation Modification Record (CMR) 98-0243, "Fracture Mechanics Evaluation of N1A Nozzle Safe End." This CMR applies to calculation ME-02-98-04 and provides updated fracture mechanics calculations and computer inputs. Based on the results of the CMR, the examination schedule for weld 24RRC(2)A-1 was re-adjusted to 970 days to account for changes in our refueling outage schedule.

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In addition, the following table is provided and contains information pertaining to our crack growth model. The table includes the crack growth associated with the fatigue cycles assumed to occur during each startup and shutdown cycle.

Startup Date	IGSCC [Depth - Inches]	Fatigue Change [Depth - Inches]	Fatigue Change [Length - Inches]
June 1998	0.29	0.00064	0.0002
July 1998	0.29744	0.00066	0.00025
August 1998	0.32916	0.00088	0.00029
June 1999	0.570493	0.00219	0.00081
November 1999	0.63994	0.00276	0.001
April 2001	0.927986	0.0051	0.002

The stresses used are conservative and are a combination of thermal stress and operating basis earthquake and safe shutdown earthquake dynamic stresses. The table has been adjusted to reflect current and future startup and shutdown cycles. As shown by the table, the summation of the incremental crack growth associated with the fatigue cycles is insignificant. The summation, when added to the calculation output, is less than the ASME Code allowable value for flaw size.

Should you have any questions or desire additional information pertaining to this letter, please call PJ Inserra at (509) 377-4147.

Respectfully,



DW Coleman
Manager, Regulatory Affairs
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Attachments

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