CATEGORY 1

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SUBJECT: Discusses request for extension of GL 88-01 re Category C Exam interval.Summary of welds fabrication & insp history also encl.

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February 19, 1997
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Docket No. 50-397

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Gentlemen:

Subject: **WNP-2, OPERATING LICENSE NPF-21, REQUEST FOR EXTENSION OF GENERIC LETTER 88-01 CATEGORY C EXAMINATION INTERVAL**

References:
1. Letter dated September 27, 1995, JV Parrish (SS) to NRC, "Extension Of Generic Letter 88-01 Category C Examination Interval"
2. Letter dated January 22, 1996, JW Clifford (NRC) to JV Parrish (SS), "Request For Extension Of Intergranular Stress Corrosion Cracking (IGSCC) Examination Of Category C Welds For The Washington Public Power Supply System (WPPSS) Nuclear Project No. 2 (WNP-2) (TAC NO. M93807)"

WNP-2 performed the mechanical stress improvement process (MSIP) on 25 safe-end-to-nozzle category D welds at refueling outage R9 (Spring, 1994). As part of the MSIP process, all treated welds received ultrasonic examination per the staff's position on Inspection Methods and Personnel as presented in Generic Letter 88-01. Because of the R9 MSIP, these welds were classified as category C and required examination again within 2 refueling outages of R9. During refueling outage R10 (Spring, 1995), one refueling outage after the MSIP was performed, eight (8) of the treated welds received examination per the Generic Letter and no unacceptable indications were identified. The annual WNP-2 refueling and maintenance outages are as follows; R7 (Spring, 1992), R8 (Spring, 1993), R9 (Spring, 1994), R10 (Spring, 1995), R11 (Spring, 1996), R12 (Spring, 1997), and R13 (Spring, 1998).

The subject welds have been examined per the staff's position in Generic Letter 88-01 at least twice within the last five refueling cycles with no unacceptable indications detected. Specifically, since April of 1992 ultrasonic examination was performed on each of these welds at least two times using Electric Power Research Institute (EPRI) qualified examiners. No unacceptable indications were identified. See Attachment 1 for a summary of the welds' fabrication and inspection history.

AOP1/1

WNP-2 water conductivity has averaged below the Boiling Water Reactor (BWR) Owner's Group Water Chemistry Guidelines Action Level 1 value of 0.30 μS/cm. Attachment 2 provides a listing of the cycle specific conductivity values for the plant. These guidelines and other proactive efforts have enabled the Supply System to maintain reactor recirculation system (RRC) water quality at a high level.

In reference 1 the Supply System requested an extension of the examination interval for Generic Letter 88-01 category C welds after the completion of the stress improvement process. It was requested that the examination required within 2 refueling outages of stress improvement be changed for WNP-2 to within 4 years after stress improvement. The net result of approval of that request would have been to allow examination of the remaining 17 category C welds during refueling outage R13 along with the examination of the reactor pressure vessel (RPV) nozzle-to-vessel welds. The primary purpose of the extension was to reduce the total personnel exposure associated with these examinations.

WNP-2 Technical Specification 4.0.5.f requires that examinations within the scope of Generic Letter 88-01 be performed in accordance with the NRC staff position on schedules included with the Generic Letter or with alternate measures approved by the NRC. The schedule for category C welds, those welds receiving stress improvement after 2 years of operation, is to perform examination within 2 refueling cycles of the stress improvement and then every 10 years thereafter (Generic Letter 88-01 Table 1).

In reference 2 the staff responded to the Supply System request of reference 1. An extension to the R13 refueling outage was approved for 5 of the remaining 17 welds requiring inspection. It was inadvertently identified in reference 2 that six welds were approved for extension to R13 when in fact weld 10LPCS(1)-4 was already re-examined in R10. An extension to the R12 refueling outage was approved for the remaining 12 welds (inadvertently identified as 11 in reference 2). One of the reasons for not approving the schedular extension of the examination of these 12 welds to R13 was "the inspection of the other 11 Category C welds during the 1998 refueling outage (R13) would not result in any reduction of the personnel exposure."

WNP-2 continues to strive for reductions in personnel exposure. The efforts to date have resulted in significant reductions during non-outage periods. In particular, during the September 1993 to August 1994 time period the non-outage average monthly exposure was 12.1 person-rem per month. During the September 1995 to August 1996 time period the non-outage average monthly exposure was 7.0 person-rem per month, or a reduction of 42%. Recent exposure data identifies a continuing downward trend as the Supply System implements additional measures to reduce non-outage exposures.

The Supply System has also achieved personnel exposure reductions during the annual refueling outages. An example of this reduction is the exposure received during the disassembly and reassembly of the reactor vessel. The personnel exposure from these activities dropped from approximately 24.5 person-rem in R10 and, through improved planning and personnel dedication was approximately 19.5 person-rem in R11. Another example of exposure reductions is the control rod drive replacements in R9 and R11. With an average contact dose reading increase from 192 R/hr in R9 to 238 R/hr in R11, the average exposure received from work on the Control Rod Drive Mechanisms (CRDMs) decreased from 2.0 person-rem per CRDM in R-9 to 1.6 person-rem per CRDM in R11. These reductions were achieved through plant modifications such as shielding, improved tooling, and improved work planning and practices.

In the continuing search for personnel exposures reductions, the Supply System installed iron and depleted zinc injection systems for WNP-2. It is expected that the drywell dose rates, due to reductions in the RRC piping dose rates, will decrease approximately 10% per year for the next several years as a result of iron and depleted zinc injection. However, since this modification was not fully implemented until after the 1996 refueling outage, no actual post injection dose rate measurements are available to confirm the expected results.

The Supply System proposes to perform a chemical decontamination of the RRC discharge piping during the R13 refueling outage. For the purpose of estimating exposure impacts, the Supply System has assumed a decontamination factor of 2.6. This factor is based on a combination of industry experience and experience at WNP-2 from a chemical decontamination performed during the R7 refueling outage. The specific method of chemical decontamination has not been finalized yet, but could result in a higher decontamination factor. The Supply System commits to perform a chemical decontamination of the RRC discharge piping during R13 if the weld examination schedule extension requested below is approved consistent with the schedule provided. If the schedule cannot be met the Supply System will perform the 12 category C weld examinations as currently planned during R12, and will not conduct the decontamination effort in 1998 due to the lack of appreciable personnel exposure reduction benefit.

In order to maximize the personnel exposure reduction, and thus to provide benefits commensurate with the projected costs of a chemical decontamination, it is requested that examination of the 12 category C welds previously extended to R12 via reference 2 be extended to allow performance during R13. This will allow performance of the examination of these 12 welds coincident with the examination of the reactor pressure vessel (RPV) nozzle-to-vessel welds and the five category C welds already scheduled for 1998, and after performance of the proposed RRC discharge piping chemical decontamination. Weld 12RFW(1)BD-11 will be examined in R12 as part of the feedwater nozzle inspection effort as documented in the Inservice Inspection Program section 6.2.3.

REQUEST FOR EXTENSION OF GENERIC LETTER 88-01 CATEGORY C EXAMINATION INTERVAL

With approval of the requested extension for the 12 category C weld examinations, and the Supply System action to perform a chemical decontamination of the RRC discharge piping, the projected personnel exposure savings associated with the performance of these 12 examinations is 36.2 person-rem. For the five category C weld examinations currently planned for performance during the 1998 refueling outage the projected exposure savings are 9.9 person-rem. The projected personnel exposure associated with the chemical decontamination effort is 9.3 person-rem. Thus, the projected total exposure savings from staff approval of this request is 36.8 person-rem. These projections do not include potential person-rem savings from general area dose rate reductions associated with drywell work other than the planned examinations. These calculations also do not include potential personnel exposure savings in future outages. These exposure estimates are based on past work history and a projected decontamination factor of 2.6.

To date, the Supply System has not identified, through the performance of Inservice Inspection examinations, any instances of intergranular stress corrosion cracking at WNP-2. Additionally, the previous examinations of the 12 welds for which schedular extension is requested have resulted in identification of no indications. Water chemistry at WNP-2 has been consistently good throughout the operating history of the plant. Therefore, the Supply System concludes that the requested schedular extension for the examination of the 12 category C welds does not pose an undo risk to plant or public safety, but results in a significant personnel exposure reduction.

Staff review and approval is requested by April 17, 1997, the planned start date for the WNP-2 1997 refueling outage. A response from the staff on or before March 17, 1997 would result in a significant cost saving for the Supply System due to the avoidance of mobilization costs. The Supply System is available to discuss this request either by phone or in person with the staff at your convenience to support your review.

Should you have any questions or desire additional information regarding this matter, please call me or L.C. Fernandez at (509) 377-4147.

Respectfully,

P.R. Bemis
Vice President, Nuclear Operations
Mail Drop PE27

Attachments

cc: JE Dyer - NRC RIV
KE Perkins, Jr. - NRC RIV, WCFO
NRC Sr. Resident Inspector - 927N
TG Colburn - NRR
DL Williams - BPA/399
NS Reynolds - Winston & Strawn

GENERIC LETTER 88-01 CATEGORY C WELDS

Identification No.	Year/Outage Weld Examined											Current Examination Schedule								Notes (1)
	1986 R1	1987 R2	1988 R3	1989 R4	1990 R5	1991 R6	1992 R7	1993 R8	1994 R9	1995 R10	1996 R11	1997 R12	1998 R13	1999 R14	2000 R15	2001 R16	2002 R17	2003 R18	2004 R19	
4JP(NZ)A-1							X		X			X					X			See note 2
4JP(NZ)B-1							X		X			X					X			See note 2
24RRC(2)A-1							X		X				X							See note 4
12RRC(1)-N2A-6							X		X				X							See note 5
12RRC(1)-N2B-6							X		X				X							See note 5
12RRC(1)-N2C-6							X		X			X					X			See note 5
12RRC(1)-N2D-6							X		X			X					X			See note 5
12RRC(1)-N2E-6							X		X			X					X			See note 5
24RRC(2)B-1							X		X			X					X			See note 4
12RRC(1)-N2F-6							X		X			X					X			See note 5
12RRC(1)-N2G-6							X		X			X					X			See note 5
12RRC(1)-N2H-6							X		X			X					X			See note 5
12RRC(1)-N2J-6							X		X			X					X			See note 5
12RRC(1)-N2K-6							X		X			X					X			See note 5
12RFW(1)AC-13	X						X	X	X	X	X									See notes 3 and 6
12RFW(1)AB-11		X					X		X	X			X							See notes 3 and 6
12RFW(1)AA-11			X				X		X	X				X						See notes 3 and 6
12RFW(1)BD-11				X			X		X	X		X								See notes 3 and 6
12RFW(1)BE-11					X		X		X	X					X					See notes 3 and 6
12RFW(1)BF-14						X	X		X	X						X				See notes 3 and 6
10HPCS(1)-4							X		X	X							X			See note 6
10LPCS(1)-4		X					X		X	X			X							See note 6
12LPCI(1)A-6		X					X		X				X							See note 6
12LPCI(1)B-6							X		X				X							See note 6
12LPCI(1)C-6							X		X			X					X			See note 6

NOTES

1 Unless otherwise noted, all material is regular grade type 304 or 316.

2 SA 508 Cl 2 nozzle, buttered with Inconel 182 weld metal, welded to 336 F8 (0.025 C) Safe end . with Inconel 82 weld metal

3 Examination also performed for NUREG 0619 commitment

4 SA 508 Cl 2 nozzle, buttered with Inconel 182 weld metal. Post weld heat treated. Welded to SA 336 F8 Safe end (with 0.020 carbon content) with Inconel 82 weld metal for root/hot pass and Inconel 182 for balance.

5 SA 508 Cl 2 nozzle, buttered with Inconel 182. Original Inconel 600 safe-end removed. New 316L safe end with Inconel 182 butter on the nozzle side of the safe end welded to original Inconel 182 buttering with Inconel 82 weld metal for the butt weld.

6 Inconel 182 buttering on nozzle welded to Inconel 600 SE with Inconel 182 weld metal root/hot pass and Inconel 182 for balance.

Attachment 1

Attachment 2

Cycle	Conductivity (μS/cm)
1	.344
2	.237
3	.241
4	.218
5	.170
6	.196
7	.192
8	.154
9	.162
10	.175