

# PRIORITY 1

(ACCELERATED RIDS PROCESSING)

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SUBJECT: Forwards final response to rev1, suppl 1 of GL 92-01,  
"Reactor Vessel Structural Integrity."

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November 2, 1995  
G02-95-235

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  
FINAL RESPONSE TO REVISION 1, SUPPLEMENT 1,  
OF GENERIC LETTER 92-01, "REACTOR  
VESSEL STRUCTURAL INTEGRITY"**

- References:   1)     Letter GI2-95-120, dated May 19, 1995, RP Zimmerman (NRC) to All Licensees, "NRC Generic Letter 92-01, Revision 1, Supplement 1: Reactor Vessel Structural Integrity"
- 2)     Regulatory Guide 1.99, "Radiation Embrittlement of Reactor Vessel Materials," Revision 2
- 3)     Letter G02-95-153, dated August 16, 1995, JV Parrish (SS) to NRC, "Response to Revision 1, Supplement 1 of Generic Letter GL 92-01, 'Reactor Vessel Structural Integrity'"
- 4)     Letter G02-94-180, dated July 28, 1994, JV Parrish (SS) to NRC, "Response to the Request for Additional Information for Generic Letter 92-01, Revision 1, Reactor Vessel Structural Integrity"

This letter completes the response to Reference 1. An assessment of relevant data for RPV plate and weld materials has been completed. Based on this assessment, no changes in best-estimate material chemistry are necessary. No new data were acquired to support this activity because all data necessary for evaluation of radiation effects on RPV integrity have been located on site. However, it was determined that additions were necessary to the data previously submitted

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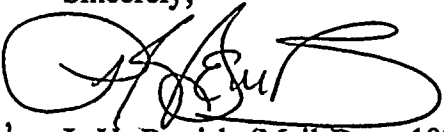
**RESPONSE TO REVISION 1, SUPPLEMENT 1, OF GENERIC LETTER  
92-01, "REACTOR VESSEL STRUCTURAL INTEGRITY"**

in References 3 and 4. The changes are identified by side bar revision marks on the attachments. The additions do not affect previously submitted data for the properties of the limiting RPV material, heat number C1272-1. Therefore, our previous evaluations remain valid, and the attached data result in no decrease in the margin of safety provided in the pressure-temperature curves developed using Reference 2 to satisfy 10 CFR 50.61 requirements. The attached affidavit provides the requested certification.

The Supply System has not yet retrieved any material surveillance coupons from the RPV. We plan to retrieve the first surveillance coupon during the refueling outage planned for the Spring of 1996. Consequently, a determination as to the need to use the ratio procedure established in Position 2.1 of Reference 2 cannot be made until the first specimen is examined.

Should you have any questions or desire additional information regarding this matter, please call me or D. A. Swank at (509) 377-4563.

Sincerely,



for J. V. Parrish (Mail Drop 1023)  
Vice President, Nuclear Operations

CJF/ml  
Attachments

cc: LJ Callan - NRC RIV  
KE Perkins, Jr. - NRC RIV, Walnut Creek Field Office  
NS Reynolds - Winston & Strawn  
JW Clifford - NRC  
DL Williams - BPA/399  
NRC Sr. Resident Inspector - 927N



WNP-2 VESSEL BELTLINE WELD MATERIAL CHEMISTRY  
(as deposited)

<u>Weld Heat Number</u>	<u>Control No.</u>	<u>Cu</u>	<u>C</u>	<u>Mn</u>	<u>Si</u>	<u>S</u>	<u>Ni</u>	<u>Mo</u>	<u>V</u>	<u>P</u>	<u>Process</u>
492L4871	--	.03	.07	1.17	.32	.02	.98	.51	.02	.02	M
5P6756	3447	.08	.063	1.27	.57	.011	.93	.45	.006	.01	S
5P6756	3447	.09	.078	1.24	.53	.012	.92	.46	.006	.01	T
3P4955	3443	.025	.035	1.33	.56	.011	.90	.52	.006	.016	T
3P4955	3443	.023	.054	1.28	.55	.010	.95	.54	.007	.016	S
04T931	--	.03	.05	1.03	.28	.024	1.00	.53	.01	.02	M
04P046	--	.06	.044	1.04	.40	.021	.90	.58	.02	.009	M
07L669	--	.03	.05	1.24	.48	.016	1.02	.54	-	.014	M
3P4966	3481	.03	.074	1.38	.36	.013	.88	.49	.006	.010	T
3P4966	3481	.03	.067	1.39	.38	.014	.90	.53	.008	.011	S
3P4966	3482	.02	.059	1.35	.38	.013	.80	.50	.005	.013	S
3P4966	3482	.02	.077	1.42	.41	.013	.92	.53	.005	.014	T
C3L46C	--	.02	.063	.96	.32	.017	.87	.53	-	.019	M
08M365	--	.02	.057	1.23	.47	.023	1.10	.57	-	.02	M
09L853	--	.03	.052	1.23	.46	.023	.86	.51	-	.018	M
05P018	--	.09	.057	1.21	.44	.021	.90	.53	.01	.008	M
624063	--	.03	.041	1.12	.41	.018	1.00	.54	.01	.009	M
624039	--	.07	.060	1.11	.45	.025	1.01	.57	.02	.015	M
624039	--	.10	.041	1.12	.45	.02	0.92	.53	.01	.01	M

Note: Process codes are as follows:

S = Single Wire Process

T = Tandem Wire Process

M = Manual



WNP-2 BELTLINE MATERIAL  
RT<sub>NDT</sub> SUMMARY.

A. Plates

<u>Heat Number</u>	<u>Start</u> <u>R<sub>NDT</sub> (°F)</u>
C1272-1	+28
C1272-2	0
C1273-1	+20
C1273-2	+4
B5301-1*	-20
C1336-1	-8
C1337-1	-20
C1337-2	-20

B. Weld Material in Beltline Welds

<u>Heat No./Lot No</u>	<u>Control No.</u>	<u>Start</u> <u>RT<sub>NDT</sub> (°F)</u>	<u>Weld Seams</u>
492L4871/A422B27AF	--	-50	AB
04T931/A423B27AG	--	-50	AB
04P046/D217A27A	--	-48	BA, BB, BD, BF, BH
07L669/K004A27A	--	-50	BA, BB
C3L46C/J020A27A	--	-20	BB, BC, BD
08M365/G128A27A	--	-48	BB
09L853/A111A27A	--	-50	BC
05P018/D211A27A	--	-38	BF
624063/C228A27A	--	-50	BG
624039/D224A27A	--	-36	BG
624039/D205A27A	--	-50	BH
**5P6756/0342	3447	-50	AB
***5P6756/0342	3447	-50	AB
**3P4955/0342	3443	-16	AB
***3P4955/0342	3443	-44	AB
**3P4966/1214	3481*	-26	BE, BF, BG, BH
***3P4966/1214	3481*	-6	BE, BF, BG, BH
**3P4966/1214	3482	-30	BA, BB, BC, BD
***3P4966/1214	3482	-48	BA, BB, BC, BD

Notes:

1. RT<sub>NDT</sub> data are based on WNP-2 FSAR Section 5.3.1.5.2.2
- \* These materials are also in the WNP-2 reactor surveillance program
- \*\* Single Wire Process
- \*\*\* Tandem Wire Process



**NRC Summary File For Pressure-Temperature Limits**  
**Plant Name WNP-2; EOL 12/20/2023**

Beltline Ident	Heat No.	Control No.	ID Neutron Fluence at EOL <sup>1</sup>	RT <sub>NDT</sub> (Deg. F)	Method of Determ. RT <sub>NDT</sub>	Chemistry Factor	Method of Determining Chemistry Factor	%Cu	%Ni
Ring #1	C1272-1	—	1.1E18	-28	Plant Specific	110	Table	0.15	0.60
Ring #1	C1273-1	—	1.1E18	20	Plant Specific	100	Table	0.14	0.60
Ring #1	C1272-2	—	1.1E18	0	Plant Specific	110	Table	0.15	0.60
Ring #1	C1273-2	—	1.1E18	4	Plant Specific	100	Table	0.14	0.60
Ring #2	B5301-1	—	1.1E18	-20	Plant Specific	95.5	Table	0.14	0.50
Ring #2	C1336-1	—	1.1E18	-8	Plant Specific	91	Table	0.13	0.50
Ring #2	C1337-1	—	1.1E18	-20	Plant Specific	105.05	Table	0.15	0.51
Ring #2	C1337-2	—	1.1E18	-20	Plant Specific	105.05	Table	0.15	0.51
Circ. Weld AB	5P6756(S)	3447	1.1E18	-50	Plant Specific	122	Table	0.08	0.93
Circ. Weld AB	5P6756(T)	3447	1.1E18	-50	Plant Specific	122	Table	0.09	0.92
Circ. Weld AB	3P4955(S)	3443	1.1E18	-16	Plant Specific	41	Table	0.023	0.95
Circ. Weld AB	3P4955(T)	3443	1.1E18	-44	Plant Specific	41	Table	0.025	0.90
Axial Weld BE - BH	3P4966(T)	3481	1.1E18	-6	Plant Specific	41	Table	0.03	0.88
Axial Weld BE - BH	3P4966(S)	3481	1.1E18	-26	Plant Specific	41	Table	0.03	0.90
Axial Weld BA - BD	3P4966(S)	3482	1.1E18	-30	Plant Specific	27	Table	0.02	0.90
Axial Weld BA - BD	3P4966(T)	3482	1.1E18	-48	Plant Specific	27	Table	0.02	0.92

**References**

Nickel-copper constituent data for circumferential welds are from Supply System letter G02-93-236, "Response to Request for Additional Information for Generic letter 92-01, Revision 1, 'Reactor Vessel Structural Integrity,'" dated September 21, 1993.  
 Nickel-copper constituent data are for plate rings from Table 5.3-6 of the WNP-2 FSAR.

Notes: 1. Neutron fluence is based on power uprate to 3486 Wt.



**NRC Summary File For Upper Shelf Energy  
Plant Name WNP-2; EOL 12/20/2023**

Beltline Ident	Heat No.	Control No.	Material Type	1/4T USE at EOL	1/4 T Neutron Fluence at EOL <sup>1</sup>	Unirradiated USE	Method of Determining Unirradiated USE
Ring #1	C1272-1	--	A533B-1	EMA <sup>2</sup>	6.8E17	EMA <sup>2</sup>	--
Ring #1	C1273-1	--	A533B-1	EMA <sup>2</sup>	6.8E17	EMA <sup>2</sup>	--
Ring #1	C1272-2	--	A533B-1	EMA <sup>2</sup>	6.8E17	EMA <sup>2</sup>	--
Ring #1	C1273-2	--	A533B-1	EMA <sup>2</sup>	6.8E17	EMA <sup>2</sup>	--
Ring #2	B5301-1	--	A533B-1	EMA <sup>2</sup>	7.3E17	EMA <sup>2</sup>	--
Ring #2	C1336-1	--	A533B-1	EMA <sup>2</sup>	7.3E17	EMA <sup>2</sup>	--
Ring #2	C1337-1	--	A533B-1	EMA <sup>2</sup>	7.3E17	EMA <sup>2</sup>	--
Ring #2	C1337-2	--	A533B-1	EMA <sup>2</sup>	7.3E17	EMA <sup>2</sup>	--
Circ. Weld AB	5P6756(S)	3447	Linde 124	79	7.3E17	91	direct
Circ. Weld AB	5P6756(T)	3447	Linde 124	84	7.3E17	97	direct
Circ. Weld AB	3P4955(S)	3443	Linde 124	81	7.3E17	90	direct
Circ. Weld AB	3P4955(T)	3443	Linde 124	86	7.3E17	95	direct
Axial Welds BE - BH	3P4966(T)	3481	Linde 124	EMA <sup>2</sup>	7.3E17	EMA <sup>2</sup>	--
Axial Welds BE - BH	3P4966(S)	3481	Linde 124	EMA <sup>2</sup>	7.3E17	EMA <sup>2</sup>	--
Axial Welds BA - BD	3P4966(S)	3482	Linde 124	EMA <sup>2</sup>	6.8E17	EMA <sup>2</sup>	--
Axial Welds BA - BD	3P4966(T)	3482	Linde 124	EMA <sup>2</sup>	6.8E17	EMA <sup>2</sup>	--

**References for WNP-2**

USE data for circumferential welds are from Supply System letter GO2-93-236, "WNP-2, Operating License NPF-21, Response to the Request for Additional Information for Generic Letter 92-01, Revision 1, "Reactor Vessel Structural Integrity," dated September 21, 1993.

- Notes:
1. Neutron fluence based on power uprate to 3486 MWt.
  2. As identified in Supply System letter GO2-94-180, "Response to Request for Additional Information for Generic Letter 92-01, Revision 1, "Reactor Vessel Structural Integrity," dated July 28, 1994.







STATE OF WASHINGTON )  
COUNTY OF BENTON )

Subject: Final Response to Revision 1,  
Supplement 1, of Generic Letter  
92-01, "Reactor Vessel Structural  
Integrity"

I, P. R. BEMIS, being duly sworn, subscribe to and say that I am the Director, Regulatory and Industry Affairs for the WASHINGTON PUBLIC POWER SUPPLY SYSTEM, the applicant herein; that I have the full authority to execute this oath; that I have reviewed the foregoing; and that to the best of my knowledge, information, and belief the statements made in it are true.

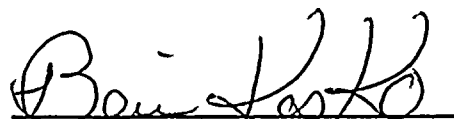
DATE 11/2/95, 1995



P. R. Bemis, Director,  
Regulatory and Industry Affairs

On this date personally appeared before me P. R. BEMIS, to me known to be the individual who executed the foregoing instrument, and acknowledged that he signed the same as his free act and deed for the uses and purposes herein mentioned.

GIVEN under my hand and seal this 2nd day of November 1995.



Notary Public in and for the  
STATE OF WASHINGTON



Residing at Kennewick

My Commission Expires 4/28/98



