Consumers Power

POWERING MICHIGAN'S PROGRESS

Palisades Nuclear Plant: 27780 Blue Star Memorial Highway, Covert, MI 49043

David W. Rogers
Plant Safety and Licensing Director

May 25, 1994

Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT - INCONSISTENCIES IDENTIFIED DURING VERIFICATION OF INFORMATION PROVIDED IN RESPONSE TO GENERIC LETTER (GL) 92-01, REVISION 1

As requested in the NRC's April 25, 1994 letter regarding information provided in response to GL 92-01, Revision 1, Consumers Power Company (CPC) has performed a review to confirm information entered in the NRC Reactor Vessel Integrity Database. The April 25, 1994 NRC letter included two enclosures that report information previously submitted to the staff in Consumers Power Company (CPC) letters dated August 31, 1990 and July 3, 1992. Enclosure 1 summarizes the information submitted by our July 3, 1992 letter with regard to Pressurized Thermal Shock. Enclosure 2 summarizes information submitted by our letters dated July 3, 1992 and August 31, 1990 in regard to upper shelf energy (USE).

The shaded information in the following table is that which is Palisades Plant specific, is different from information we submitted in our July 3, 1992 response to GL 92-01, and is inconsistent with the information reported in Enclosure 1 transmitted by the NRC's April 25, 1993 letter. The explanation of that inconsistency follows.

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Beltline Identification	Heat Number Identification	IRT_{ndt}	Method of Determining IRT_{ndt}	Chemistry Factor	%Cu	%Ni
Plate D-3803-1	C-1279	-5°F	Plant Specific	150	0.24	0.51
Plate D-3803-2	A-0313	30°F	MTEB 5-2	160	0.24	0.52
Plate D-3803-3	C-1279	-5°F	Plant Specific	150	0.24	0.50
Plate D-3804-1	C-1308	0°F	MTEB 5-2	128.8	0.19	0.48
Plate D-3804-2	C-1308	30°F	MTEB 5-2	131	0.19	0.50
Plate D-3804-3	B-5294	25°F	MTEB 5-2	82	0.12	0.55
Lower Shell Axial Welds 3-112 A/C	34B009	-56°F	Generic	203	0.18	0.92

The initial RT_{NDT} value provided in CPCo's July 3, 1992 response to Generic Letter 92-01 was intended to represent a bounding plate. Actual values of initial RT_{NDT} for each beltline plate and surveillance program material were submitted to the NRC on May 23, 1978. Those values are listed in the above table for plates D-3803-2, D-3804-1, D-3804-2 and D-3804-3. Plates D-3803-1, D-3803-3 and the reactor vessel surveillance program material were fabricated from the same heat of material; therefore, the initial RT_{NDT} of the surveillance material is used for plates D-3803-1 and D-3803-3. The chemistry factor derived from surveillance data was conservatively determined to be 150°F in CPC's June 5, 1992 PTS submittal. Therefore, the chemistry factor for plates D-3803-1 and D-3803-3 should be no greater than 150°F.

The database for weld wire Heat No. 34B009 used in the lower shell axial welds of the Palisades reactor vessel (RV) has been expanded since our June 5 and July 3, 1992 submittals.

Northeast Utilities (NU) has removed and analyzed an additional Millstone 1 surveillance capsule. Their 300 degree capsule report (GE-NE-523-165-1292, Rev. 1) includes a reevaluation of previous surveillance program results. The information from the Millstone 1 surveillance weld, which was fabricated with weld wire heat number 34B009 with nickel addition, is applicable to the Palisades reactor vessel lower shell axial seams. Attachment 1 contains an assessment of the effect this information has on welds fabricated with weld wire heat number 34B009 with nickel addition.

Enclosure 2 transmitted by the April 25, 1994 NRC letter summarized information in the NRC database in regard to Upper Shelf Energy (USE) from CPC submittals dated August 31, 1990 and July 3, 1992. The shaded information in the following table indicates information that is inconsistent with that reported in Enclosure 2.

Beltline Identification	Heat Number	(1/4)T USE at EOL	Unirradiated USE	Method of Determining Unirradiated USE
Plate D-3803-1	C-1279	74	102	Direct
Plate D-3803-2	A-0313	64	87	65%
Plate D-3803-3	C-1279	74	102	Direct
Plate D-3804-1	C-1308	53	72	65%
Plate D-3804-2	C-1308	55	76	65%
Plate D-3804-3	B-5294	53	73	65%
Lower Shell Axial Welds 3-112 A/C	34B009	65	111	Sister Plant

The unirradiated USE submitted by CPC on August 31, 1990 and reported in Enclosure 2 are longitudinal values reduced by 65%. The surveillance material from plate D-3803-1 (which is from the same heat as plate D-3803-3) was directly determined in the transverse direction and was most recently submitted in our T-330 and W-290 surveillance capsules report of October 31, 1984. Therefore, that is the USE value for plates D-3803-1 and D-3803-3 in the table above.

In our August 31, 1990 submittal, it was demonstrated using Palisades and Indian Point 3 surveillance data (both having a copper content of 0.24%) that Palisades' beltline plates are conservatively represented by the 0.15% copper line on Figure 2 of Regulatory Guide (RG) 1.99, Rev. 2. All the Palisades RV beltline plates have a copper content $\leq$ 0.24% and the value of the USE of those plates should be bounded by the value of USE derived by using the percent reduction indicated by the 0.15% copper curve in Figure 2 of RG 1.99, Rev. 2. The 1/4T EOL USE values derived by using the 0.15% copper curve from Figure 2 of RG 1.99 Rev. 2 are those reported in the above table except for the actual result reported for plates D-3803-1 and D-3803-3. The values in the above table for those plates are the same as the Palisades surveillance results.

The USE values for weld wire heat 34B009 in the above table result from new data obtained from the Millstone 1 surveillance program. As mentioned previously, the database for weld wire Heat No. 34B009 has been expanded by more recent results obtained by Northeast Utilities (NU). NU has removed and analyzed the Millstone 1 300 degree reactor vessel surveillance capsule and reevaluated the results from the 210 degree capsule. The revisions for welds fabricated with weld wire Heat Number 34B009 are described in Attachment 1.

James L Kreuzer for

David W Rogers
Plant Safety and Licensing Director

CC Administrator, Region III, USNRC
NRC Resident Inspector - Palisades

Attachment

ATTACHMENT

Consumers Power Company
Palisades Plant
Docket 50-255

WELD WIRE 34B009 +Ni 200 ADDITION
MILLSTONE 1 SURVEILLANCE CAPSULE

May 25, 1994

2 Pages

WELD WIRE HEAT 34B009 + Ni 200 ADDITION

The Millstone 1 300 degree surveillance capsule report contains new and revised information concerning welds fabricated with weld wire heat number 34B009 with nickel addition. The Charpy energy curves for unirradiated conditions and from the 210 degree capsule have been replotted and the fluence for the 210 degree capsule has been recalculated. The changes are listed below.

Capsule Identification	Fluence (10^{19}n/cm^2)	Upper Shelf Energy (ft-lb)	ΔRT_{NDT} (°F)
Initial	-	111	-
210°	0.039	108	22
300°	0.066	88	76

The reduction in USE is plotted on Figure 2 from Regulatory Guide 1.99, Rev. 2. The data is bounded by the 0.25% copper curve for welds. CPCo has used this curve for predicting the reduction in USE for welds fabricated with weld wire heat number 34B009 with nickel addition.

Three additional chemical analyses are included in the 300 degree capsule report and are incorporated in the best estimate chemistry determination below.

Weld	Copper (%)	Mean Weld Copper (%)	Nickel (%)	Mean Weld Nickel (%)
Millstone 1 Surveillance Weld	0.19 0.20 0.19 0.20 0.19 0.18 0.14 0.12 0.20 0.21 0.20 0.18 0.19 0.20 0.20 0.16	0.18	0.86 0.95 0.96 0.99 1.06 1.09 1.30 1.06 0.94 0.99 0.59 1.09 1.78	1.05
H B Robinson 2 Torus to Dome Weld	0.202 0.180 0.182 0.183	0.187	0.75 0.84	0.80
Best Estimate	-	0.18	-	0.92

This results in a revised chemistry factor of 203°F for welds fabricated with weld wire heat number 34B009 with nickel addition. A least squares fit of ΔRT_{NDT} versus fluence for the Millstone 1 surveillance weld results in a chemistry factor of 174°F. 203°F conservatively represents the subject welds.

Note that a copper content from a procedure qualification weld reported in our June 5, 1992 submittal has been excluded from the weld chemistry determination. That chemistry measurement was taken from a draft report. The final report indicated that the subject weld deposit was an experiment that did not clearly document if the copper coating was included on the weld wire.