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June 18, 1982

Director, Office of Nuclear Reactor Regulation
Attention: D. M. Crutchfield, Chief
Operating Reactors Branch No. 5
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Subject: Docket No. 50-206
Pressurized Thermal Shock
San Onofre Nuclear Generating Station
Unit 1

By letter dated May 26, 1982 we transmitted to you our response to the NRC's request for additional information. Subsequently it has been determined that the submittal contained incorrect information. On page 2 of the submittal it is mistakenly indicated that the San Onofre Unit 1 core design is 15x15. The Unit 1 core design is 14x14. On page 4 of the submittal, incorrect volume fractions for the San Onofre Unit 1 core were provided. Provided as an enclosure are corrected pages which indicate the 14x14 core design and the correct volume fractions. These changes do not affect the PTS analysis or the conclusions of the submittal for San Onofre Unit 1.

If you have any questions, please let me know.

Very truly yours,

RWKrieger

R. W. Krieger
Supervising Engineer, San Onofre
Unit 1 Licensing

Enclosure

A049

TABLE 1

MATERIAL COMPOSITION OF REACTOR CORE REGION

MATERIAL	VOLUME FRACTION DESIGN BASIS	VOLUME FRACTION SAN ONOFRE
Water	.58864	.581
UO_2	.29967	.338
Zirc - 4	.10035	
Inconel - 718	.00281	.004
Stainless Steel - 304	.00062	.067

TABLE 2

SAN ONOFRE UNIT 1 PERIPHERAL POWER

ASSEMBLY No.	CYCLE 1	2	3	4	5	6	7	8	AVG.
2	.59	.77	.76	.52	.77	.77	.68	.68	.69
3	.49	.64	.63	.59	.65	.67	.48	.48	.57
4	.96	1.10	1.12	1.14	1.16	1.16	1.11	1.12	1.10
5	.76	.97	.89	.93	.94	.98	.96	.98	.92
6	.52	.71	.63	.65	.66	.71	.69	.71	.65
7	.94	1.16	1.13	1.12	1.10	1.13	1.15	1.17	1.11
8	.59	.79	.76	.68	.73	.77	.78	.79	.73
9	.91	1.06	1.13	.89	1.02	1.04	1.13	1.14	1.04
Burnup	14300	8000	10000	9650	9630	9400	10950	9950	

NOTE: THE FUEL ASSEMBLY NUMBERS REFER TO CORE POSITIONS DESIGNATED IN FIGURE 1-4 OF THE 150 DAY RESPONSE

The material composition submitted in the 150 day response was based on a fuel assembly design consisting of a 17 x 17 array of zirconium clad fuel rods. In actuality, the San Onofre Unit 1 reactor employs a fuel design consisting of a 14 x 14 array of stainless steel clad fuel rods. A comparison of the material volume fractions for a homogenized reactor core employing each of these fuel designs is given in Table 1. An examination of Table 1 shows that the compositions of the two fuel assemblies are quite similar and in our opinion the differences will have an insignificant impact on reactor vessel fluence calculations.

Plant specific peripheral assembly power distributions for cycles 1 through 8 are tabulated in Table 2. These data were extracted from the appropriate core design reports (WCAP's 3269-07, 7490, 7799, 8060, 8490, 8933, 9334, 9633). Bias factors were applied to the design power distributions consistent with the methodology outlined in WCAP 10019. Also presented in Table 2 are the eight cycle time average power distributions for the peripheral assemblies. These average distributions were obtained by burnup weighting of the individual fuel cycle data sets. A comparison of the cycle average data with the design basis peripheral power distribution is depicted in Figure 1. An examination of Figure 1 shows that the plant specfic power distribution will result in a somewhat lower fluence projection than that which would be calculated using the design basis distribution. It would appear that a reduction in pressure vessel fluence on the order of 20% might be realized. However, at this time neutron transport calculations using the plant specific power distributions have not been carried out. These computations must be complete before any reduction in the current pressure vessel fluence can be certified. It must also be reemphasized that the plant specific data are applicable only for establishing the present condition of the pressure vessel. They should not be used to project forward in time.

An examination was also made of the variations in the power density gradients for the peripheral fuel assemblies at beginning of life and end of life for both 14 x 14 and 17 x 17 fuel rod arrays. The conclusion of this study was that these spatial gradients, relative to an assembly average power of 1.0, were quite similar in all cases examined.

Therefore, the gradient information previously provided in the 150 day response should also be used to generate plant specific fluence values for San Onofre Unit 1. Likewise, the time averaged axial power distribution supplied in the 150 day response is suitable for the current analysis.

(B) A summary of the results of the latest design basis neutron transport calculation for the San Onofre Unit 1 pressure vessel were provided in Figures 1-6 through 1-8 of the 150 day response. The estimated uncertainty in the prediction of pressure vessel fluence was discussed in WCAP-10019. It was noted that the best estimate computation with an uncertainty level of $\pm$ 20 percent bounded measured data from a large number of reactor vessel surveillance capsules. Agreement between