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October 26, 1984

W3P84-3044
3-A1.16.07
A4.05

Director of Nuclear Reactor Regulation
ATTN: Mr. Dennis M. Crutchfield, Asst. Director
for Safety Assessment
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: WATERFORD 3 SES
ADDITIONAL INFORMATION ON BASEMAT
HAIRLINE CRACKS

Reference: Letter, D.M. Crutchfield to J.M. Cain dated October 19, 1984

Dear Mr. Crutchfield:

The purpose of this letter is to submit additional information in response to the requests in your letter of October 19, 1984.

A report detailing the ultrasonic testing results on the hairline cracks in the basemat has been received from Muenow and Associates, which performed the testing. The report is attached for staff review. As described in the report the hairline cracks are all vertical flexural cracks with no evidence of diagonal cracks due to shear loading. The cracks are tight (range of .003 to .007 inches) and vary in depth from shallow down to the region of the bottom rebar. The ultrasonic investigation also indicated the concrete strength was in excess of the design requirement and that no areas of voids or honeycombing were found.

LP&L initiated a review by Ebasco of the ultrasonic test results to evaluate the structural significance of the hairline cracks. This evaluation (attached) reached the conclusion that "...the cracks in the Waterford 3 basemat, as defined by the nondestructive testing, have no adverse influence on the structural integrity of the basemat. It is fully capable of functioning as required by the design."

The reference letter requested a statement on why the cracks in the basemat were not discovered prior to May 1983. The cracks observed in 1977 were noted as a result of preparing the containment area for pouring fill concrete. The engineering evaluation of these cracks determined they were of no structural significance but should be repaired to ensure a good bond between the fill concrete and the basemat. The areas of the basemat adjacent to the containment

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area continued to be congested with materials and water laying on the basemat from the ongoing construction activities in these areas. Since the cracks in the containment area were dispositioned as being not significant and no fill material was to be placed in areas outside the containment area, no effort was made to clean up or dry out the basemat to determine if additional cracks existed. The construction activities continued in these areas until late 1982 and early 1983 when final clean up of the areas was begun. In May 1983, during the clean up activities, the cracks in the reactor auxiliary building were observed. As a result of the review undertaken by LP&L, the basemat for the containment annulus, fuel handling building and reactor auxiliary building were mapped for cracks.

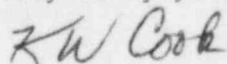
The Appeal Board's Memorandum and Order dated October 2, 1984 noted an inconsistency in the data presented in Harstead Report No. 8304-3. Attachment A discusses the results of a review of the report which concludes that the inconsistency was a typographical error and is neither indicative of unreliable data being supplied to HEA nor would it have any impact on the conclusion in the report.

The referenced letter indicates that issues 7, 11, and 19 of the June 13, 1984 letter from D.G. Eisenhut to J.M. Cain deal with the basemat integrity. LP&L has provided the staff with responses to these issues which demonstrate that no concerns should exist with respect to the basemat due to the allegations raised. The backfill soils test data is complete and meets the specification, the cad-welding data has been evaluated and meets the specification and the conduits which penetrate the basemat do not constitute a flooding hazard.

The independent Task Force set up to review and validate LP&L's responses to the 23 concerns has indicated that validation of issues 7 and 19 will be complete by October 26, 1984. A validation report on Issue 11 was submitted previously. The validation reports are submitted simultaneously to J.M. Cain and D.G. Eisenhut.

The other issues, from the June 13, 1984 letter, which potentially impact the basemat are issues 10 and 20. Responses to these issues will be provided to the staff by October 31, 1984. The two contractors which were involved with the basemat were J.A. Jones (concrete) and GEO-CMT (Construction Material Testing). Based upon the review of inspector qualifications performed to date on these contractors LP&L expects to fully disposition any potentially unqualified inspectors and expects to resolve any concerns regarding the basemat inspection following the October 31, 1984 submittal. Examination of records have shown a high degree of overinspection of J.A. Jones inspection by qualified Ebasco inspectors. GEO-CMT work efforts included a number of work tasks for which an inspector qualification to ANSI standards was not necessary to demonstrate competence to perform the function.

Very truly yours,



K.W. Cook

Nuclear Support & Licensing Manager

KWC:sms

cc: E.L. Blake, G.W. Knighton, G.L. Constable
(with report)

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cc: (w/o report) - W.M. Stevenson, J.T. Collins, J.H. Wilson

ATTACHMENT

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bcc: R.S. Leddick, R.P. Barkhurst, F.J. Drummond, T.F. Gerrets, G.G. Hofer
(Ebasco), W.A. Cross (LP&L Bethesda Office), J.W. Veirs (CE), R.M. Nelson,
Administrative Support (3), Licensing Library, Project Files

ATTACHMENT A
REVIEW OF HEA REPORT DATA

A review of the cadweld data, utilized by HEA to generate Report No. 8304-3 dated January 9, 1984, was performed to determine the source of the inconsistency noted by the ASLAB in their letter to the NRC staff.

The data for cadweld 2W120 indicates that the cadweld was a production splice test from block No. 1 of the common foundation mat. As such, Appendix I of the HEA report is correct as there were no mechanical splices in block 16. It appears as though there may have been an error on the part of HEA in transposing the data while generating Appendix II.

Additionally, a review of the data in appendicies I & II of the HEA was performed to determine if there were other typographical errors. The following is a summary of the review:

Appendix I

Sheet 5 - The date for block 14 A should be 4/23/76 not 4/23/79

Appendix II

Sheet 1 - The tensile strength for 3W119 should be 94,150 not 94,750

Sheet 2 - The tensile strength for 7W122 should be 95,250 not 92,250

Sheet 2 - The date for 4W36 should be 11/13/75 not 11/12/75

These errors appear to be typographical errors on the part of HEA in transposing data in the preparation of their report and are not indicative of a problem with inconsistent or unreliable data in the records packages.

Discussions have been held with HEA on the above discrepancies. HEA has indicated that the minor deficiencies noted would have no effect on the conclusion contained in their report. The overall effect of the deficiencies would be to increase the average tensile strength on Sheet 4 of Appendix II from 95,401 to 95,430.