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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JUL 24 1979

MEMORANDUM FOR: Richard E. Johnson, Engineering Branch, DOR

THRU: *S.H.W.* Seymour H. Weiss, Section Leader, Section C,
Reactor Safety Branch, Division
of Operating Reactors

FROM: Peter S. Kapo, Reactor Safety Branch, DOR

SUBJECT: TAP - All: VESSEL TOUGHNESS SPECIAL CONSIDERATIONS

As you remember, during our conference with Dr. Hanauer on October 1, 1979, we discussed spectral effects. We decided that the three following efforts might prove fruitful: (1) meet to discuss the range of spectra considered in current correlations with George Guthrie of HEDL, (2) discuss the spectral effect on material properties with Russ Hawthorne of NRL, and (3) have John Carew of BNL procure vendor spectrum studies for us.

I called George Guthrie, and he suggested that rather than talking to him I contact Bob Odette at the University of California. Bob felt he had some papers which would help with our questions, and he is forwarding copies to me. I do not feel that further discussion with Guthrie would be productive at this time, but after we have digested the papers we may wish to consult with Odette.

Russ Hawthorne stated that the best correlation of mechanical properties with fluence results when fluence is measured in DPA units. In some cases, such as in reactor pressure vessels, the (E>1 MEV) fluence is nearly proportional to the DPA fluence, and in these cases a good correlation of mechanical properties can be made with either DPA or (E>1 MEV) fluence. However, when a wide variety of spectra are considered, it is found that a good correlation of mechanical properties can be drawn with the DPA fluence, but a poor correlation is drawn with (E>1 MEV) fluence.

John Carew has been talking to the vendors, and they seem agreeable to sharing some of their spectral information with us. However, John indicated that he would not have this information for us until the end of November, at the earliest.

I will keep you posted on any further developments on spectral effects.

Pek

Peter S. Kapo
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- 2 -

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