

POOR ORIGINAL

UNITED STATES NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

8/10/79

In the Matter of:

Houston Lighting & Power,  
(Allens Creek Nuclear Generating  
Station, Unit #1)

Docket #50-466

JOHN F. DOHERTY' AMENDED CONTENTIONS #33, 19

John F. Doherty, Intervenor in the above Construction License Proceeding, now files the below amended contentions to the Board. Parties should have previously received amendments to Contentions numbered: 12, 22, 23, 24, 26, 28, 29, 34, and 38, these being filed following a Board order suggesting amendments would be received.

Amended Contention #33

Applicant's reactivity control system relies excessively on the Doppler effect to mitigate the effects of transient caused overpower of the system. Applicant's reactor manufacturer General Electric, relies on experimental data that does not support this reliance as will be shown below. Applicant's referenced publication, NEDO-20,964 "Generation of Void and Doppler Reactivity Feedback for Application to BWR design (July, 1975) states, "The basic mathematical model in calculating void reactivity and reactivity coefficient for BWRs has been the same since 1961, (Pg 15). This mathematical model has been relied upon because it produced data similar to the experimental data produced from experiments using the SPERT-I and SPERT-III reactors. But the experiments from SPERT-I cited in NEDO-20,964, cannot be applied because that reactor used a powdered oxide of uranium which dispersed into the coolant during excursion testing, creating the appearance that Doppler feedback had decreased the reactivity when it was actually the dispersal of the powder through the failed cladding to the coolant which mitigated the transient effects. SPERT-III, referenced in NEDO-20,964 was an "... experimental program [1] limited to non-destructive reactivity accident tests," (IDO-17281, March, 1969, P. 79), which did not include investigation into the mechanical behavior of the fuel (pellets of uranium dioxide). The National Reactor Testing Station planned and sought support for for investigations with SPERT-III which would not be limited to non-destructive reactivity accident test in an internal report, PTR-815 (See: pp 17-9, and 30), but the tests were not performed.

Intervenor contends that since ACNGS is the most powerful BWR attempted (and has a higher power core density than any licensed BWR) that miscalculation of the Doppler reactivity feedback effect will produce greater consequences to his health and safety interests. Intervenor seeks as a result:

- (a) Delay of the construction license until excursion testing can be done (on a 238 inch core with irradiated oxide fuel in pelletized form in an 8 x 8 configuration) as sought by the National Reactor Testing Station,

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(b) Cancellation of the ACNGS project.

Amended Contention #19

Intervenor contends Applicant's control rod drive system (CRDS) is susceptible to cracking in collet retainer tubes which will prevent operation of two or more control rod drives during an accident sequence, making safe shutdown impossible thus endangering Intervenor's health and safety. Twenty-four (24) of sixty-five (65) inspected CRDs were found cracked in 1975 at the Monticello nuclear plant. NUREG-0479 reports that 10% of 779 inspected collet retainer tubes in 11 Boiling Water Reactors had such cracks. This intervenor contends that:

collet retainer tubes are one of the, "[p]rincipal ...engineering criteria for the design...for the protection of the health and safety of the public" and hence must be cured of cracking problems before a construction license may be tendered.

\* See 10 CFR 50.35 (a) (1).

CERTIFICATE OF SERVICE

Copies of "JOHN F. DOHERTY'S AMENDED CONTENTIONS #33, 19", were served on parties listed below via first class mail on August 10 th, 1979.

Respectfully,

*John F. Doherty*  
John F. Doherty (pro se)

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